



FRIDAY, NOVEMBER 15, 1878.

Contributions.

The Paris Exhibition—Locomotives of the Austrian State Railroad Company.

(Continued from page 537.)

TO THE EDITOR OF THE RAILROAD GAZETTE:

Locomotives for the regular freight service are six or eight-wheel-coupled. To the first class belong ten-wheeled tank locomotives, divided into four types and numbering 48. Fig. 6 represents the type of 1860. They are of the Engerth system, and differ from the passenger or mixed tank locomotives by having cylinders and valve-motions outside, otherwise being very similar to them. Their dimensions are:

boilers are of Martin steel, the fire-box tube-plates are of copper, and the grate is made especially large for burning small coal. Steel was used freely in construction to reduce the weight. To enable them to run sharp curves the axle-boxes are provided with inclined planes, admitting a lateral play. They hauled, in the average, in 1877, trains of 380 tons, using per 100 ton-miles 15.75 lbs. of Kladno, or 12.43 lbs. of Steyerdorf coal. The Kladno coal is poor (charbon maigre), gives a short flame, and does not make coke easily; it contains from 18 to 20 per cent. of ashes and stones. The Steyerdorf coal is semi-bituminous (demi-gras), gives a long flame, contains very little sulphur, and only 8 to 10 per cent. of ash; it makes good coke. There are 20 of these locomotives, and their dimensions are:

Diameter of cylinders.....	17.71 in.
Stroke of pistons.....	25.59 "
Diameter of boiler, outside.....	4 ft. 3.18 in.
Number of flues.....	175.
Length of flues between plates.....	14 ft. 11.1 in.
Heating surface of the fire-box.....	97.95 sq. ft.
total.....	14.93 "
Area of grate.....	20.34 "
Diameter of chimney.....	17.32 in.
driving-wheels.....	4 ft. 9.08 in.
Wheel-base.....	11 ft. 2.6 in.
Total length of locomotive.....	29 " 11.3 in.
Weight of locomotive, empty.....	37.62 tons.
loaded.....	42.02 "
Effective boiler steam pressure.....	131.85 lbs.

Their tractive power is 182.5 lbs. for each pound of effective pressure per square inch on the pistons, and the capacity is 440 tons on a grade of $\frac{1}{10}$ (52.8 ft. per mile), at a speed of 9.3 miles per hour.

There is one type of locomotive of a peculiar construction, designed by Mr. John Haswell for mountain service. They have 10 wheels coupled and so arranged as to run in curves of 275 ft. radius. Fig. 9 represents the design. The three first axles are guided by one frame, and the two hind axles by another frame; the frames are coupled by a pivot-bolt, in front of the fire-box, in the same manner as on the tank locomotives above described. The third is the main driving axle, and is coupled with parallel rods to the two front axles in the usual manner. The two hind axles are also coupled with each other. The frames being outside, all axles are provided with outside cranks. To transmit the power from the main axle to the hind axles an intermediate shaft and radiating parallel-motion have been devised. This shaft is carried by and above the first of the hind axles, on spherical bearings, and is kept at a constant distance from the main axles by means of rods provided also with spherical bearings. By this contrivance the axles of the front and rear frames may adapt themselves to the varying angularity on curves, without producing the slightest change in the distances of the

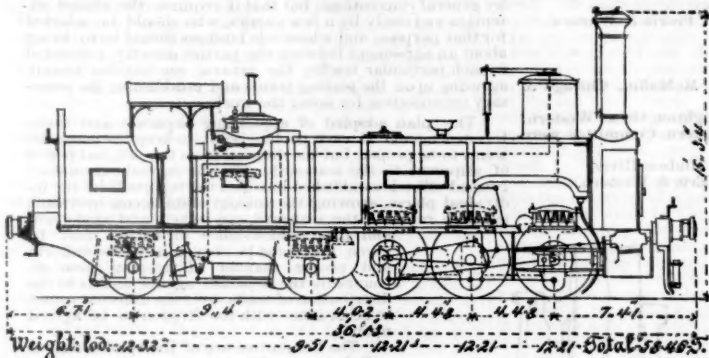


Fig. 6.

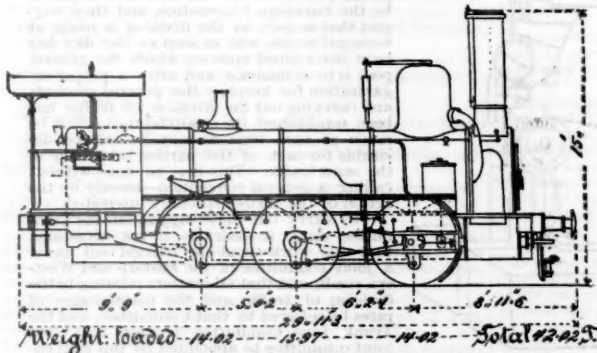


Fig. 7.

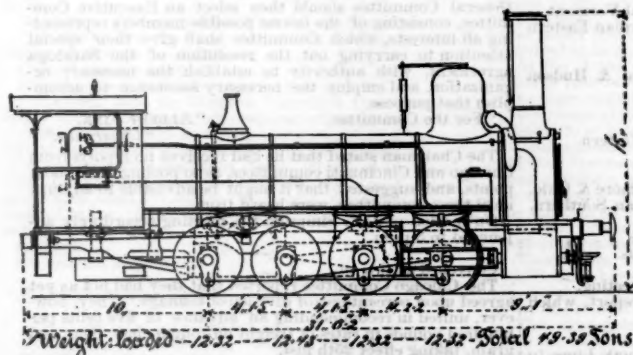


Fig. 8.

Diameter of cylinders.....	17.14 in.
Stroke of pistons.....	24.88 "
Diameter of boiler, outside.....	4 ft. 2 in.
Number of flues.....	179.
Length of flues between plates.....	15 ft. 2.6 in.
Heating surface of the fire-box.....	83.90 sq. ft.
total.....	1,544.66 "
Area of grate.....	15.40 "
Diameter of chimney.....	15.74 in.
driving-wheels.....	4 ft. 1.70 in.
running wheels.....	3 " 1.32 "
Wheel-base.....	22 " 2.1 "
Total length of locomotive.....	36 " 1.3 "
Weight of locomotive, empty.....	44.3 tons.
loaded.....	58.46 "
Weight on drivers loaded.....	36.63 "
Capacity of water-tank.....	1,600 gals.
coal-bunker.....	170.37 cub.ft.
Effective boiler steam pressure.....	114.8 lbs.

Their tractive power is 146.9 lbs. for each pound effective pressure per square inch on the pistons; they are capable of hauling 390 tons, exclusive of their own weight, on a grade of $\frac{1}{10}$ (52.8 ft. per mile), at a speed of 9.3 miles per hour.

Fig. 7 represents an example of the other style of six-wheel coupled freight locomotives, and is the type of 1877. They were constructed to perform various services; for slow and fast freight trains, or for mixed trains, on roads with light grades; and also for passenger trains on roads with steep grades. The constant fluctuations of the traffic, which sometimes changes from one to three times the amount in a week requires such a special type of locomotive. Their

Their tractive power is 140.6 lbs. for each pound of effective pressure per square inch on the pistons, and the capacity 275 tons, exclusive of their own and tender's weight, on a grade of $\frac{1}{10}$ (52.8 ft. per mile), at a speed of 11.78 miles per hour.

The most powerful locomotives of the company are the eight-wheeled, coupled; they outnumber all other styles, 136 of them being in service. Fig. 8 represents the type of 1875; they have boilers of steel and are designed specially for the use of small coal. The boxes of the front and rear axles have a lateral play of 0.39 in. each way. They haul on the average trains of 550 tons, using 17.31 lbs. of Kladno or 9.04 lbs. Steyerdorf coal per 100 ton-miles. Their dimensions are as follows:

Diameter of cylinders.....	18.50 in.
Stroke of pistons.....	24.88 "
Diameter of boiler, outside.....	4 ft. 7.08 in.
Number of flues.....	195.
Length of flues between plates.....	16 ft. 4.9 in.
Heating surface of the fire box.....	102.47 sq. ft.
total.....	1,813.76 "
Area of grate.....	19.91 "
Diameter of chimney.....	17.87 in.
driving-wheels.....	3 ft. 10.65 in.
Wheel-base.....	19 ft. 5.2 in.
Total length of locomotive.....	31 ft. 6.2 "
Weight of locomotive, empty.....	43.88 tons.
loaded.....	49.39 "
Effective boiler steam pressure.....	131.25 lbs.

bearing of the intermediate shaft and of axles with which they are jointed.

The cranks of the intermediate shaft can thus be coupled to cranks of the main axles and the first hind axles. There are four of these locomotives, built between 1863 and 1867; their dimensions are as follows:

Diameter of cylinders.....	18.15 in.
Piston strokes.....	24.88 "
Diameter of boiler, outside.....	4 ft. 0.75 in.
Number of flues.....	158.
Length of flues, between plates.....	14 ft. 6.2 in.
Heating surface of the fire-box.....	78.45 sq. ft.
total.....	1,307.85 sq. ft.
Area of grate.....	15.5 "
Wheel-base.....	10 ft. 5.3 in.
Total length of locomotive.....	33 " 6.8 "
Weight of locomotive, empty.....	31.80 tons.
loaded.....	46.75 "
Effective steam pressure in boiler.....	102.5 lbs.

Their tractive power is 208.1 lbs. for each pound of effective pressure per square inch on the pistons; they are capable of hauling 121 tons, exclusive of their own and tender's weight, on a grade of $\frac{1}{10}$ (105.6 feet per mile) at a speed of 9.3 miles per hour.

It will be observed on all sketches of the different locomotives that all smoke-stacks have sliding covers on top. These are moved by the engineman from his platform, and serve to stop the draft whenever steam is shut off. The same arrangement can be seen on the whole continent of Europe,

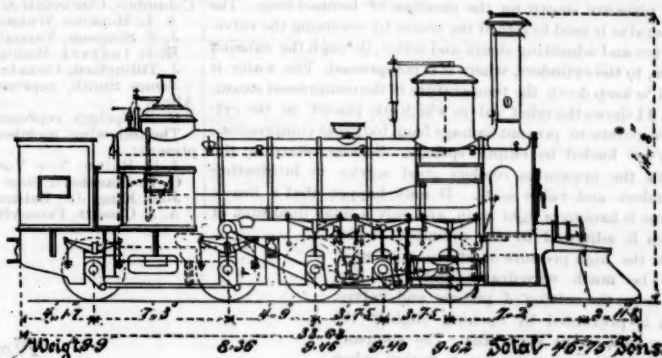


Fig. 9.

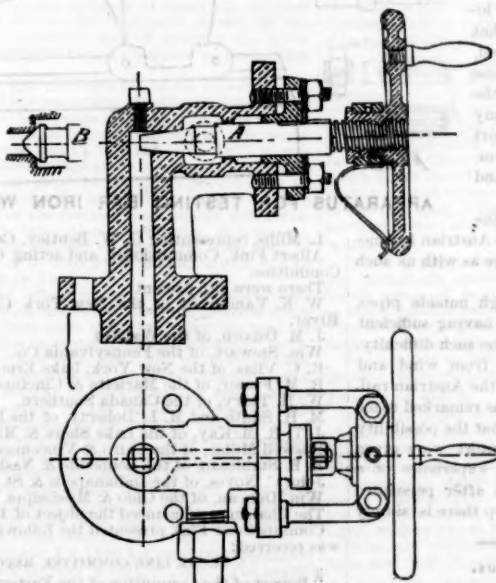


Fig. 10.

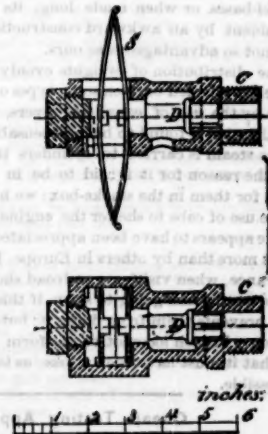


Fig. 11.

and is undoubtedly an improvement on the American practice of opening the fire-door for the same purpose. The cold air, admitted to the fire-box while it is hot, damages the flues, and probably is one of the causes of the cracking of the fire-box sheets.

Of the whole number of locomotives on the Austrian State Railroad, 354 are provided with the Le Chatelier counter-pressure apparatus, and the company intends to apply it to all. The apparatus consists of two valves, or cocks, placed on top of the boiler near the engine-driver. Fig. 10 shows the section and plan of the water cock, which is fitted internally with a pipe leading to the water space of the boiler. Its spindle where it touches the seat, it will be noticed, has a very gradual taper to effect a minute adjustment of admission, and the hand wheel can be kept in position by means of a spring with a rivet, whose head fits into hemispherical depressions made in the rim of the wheel, allowing still better regulation. The steam cock is made like the other, excepting the end of its spindle, which has a form as shown in the small figure on the left-hand side of fig. 10; it has also an internal pipe leading to the steam space of the boiler. Both cocks have external pipes which unite in one, and the latter is carried under the boiler to the front, where it branches off to the exhaust pipes of the cylinders (the cocks and pipes are shown on the sketches of locomotives). The apparatus is used to retard the trains by reversing the valve-motion and admitting steam and water, through the exhaust pipes, to the cylinders, where it is compressed. The water is used to keep down the temperature of the compressed steam. Fig. 11 shows the relief valves which are placed on the cylinder covers to prevent damage from too great compression; they are loaded by elliptic springs. Besides retarding the trains the apparatus renders good service in lubricating cylinders and valve seats. It may happen that a heavy engine is hauling a light train, and only a small quantum of steam is admitted to the cylinders, which with the high pressure of steam now used, will be much wire-drawn and very dry, and cause the cutting of pistons and valves. This is prevented by opening slightly the water cock of the apparatus. The company also states that, arriving on a station, when the steam is shut off, and the valve-motion is put into full gear, there is produced at some portion of the stroke a suction of the hot gases and dust into the cylinders, which damages the surfaces in contact. This is again avoided by opening slightly the water cock of the apparatus, before the throttle is closed.

At a future time I expect to make a comparison between European and American locomotives, and will only observe here, what probably many of my readers have noticed, that the striking differences between those just described and our locomotives are: the proportion of the boiler—their long and many flues, small fire-boxes and grates; their short wheel-bases, or when made long, its accomplishment by an awkward construction, and one not so advantageous as ours.

The distribution of weights evenly on the wheels is effected only on some types of the Austrian locomotives by the use of equalizing levers, where as with us such equalization is found to be indispensable.

The steam is carried to cylinders through outside pipes, and the reason for it is said to be in not having sufficient room for them in the smoke-box; we have no such difficulty.

The use of cabs to shelter the enginemen from wind and smoke appears to have been appreciated by the Austrian railroads more than by others in Europe. It was remarked to me in France, when visiting a railroad shop, that the possibility of the engineman going to sleep, if this comfort were given him, prevents them from doing it; but my experience of a ride on a French locomotive platform soon after persuaded me that it must have been a joke, as to sleep there is simply impossible.

Cheap Testing Apparatus.

Our engraving represents a device used by Mr. L. Finlay, the Master Mechanic of the St. Louis, Iron Mountain & Southern Railway at Little Rock, for testing common bar iron or other similar material, and which can be used with an ordinary wheel press. Fig. 3 shows several views of the apparatus used for testing the tensile strength of a bolt or bar. It consists of a cross-piece (represented by shade lines in fig. 1) which is placed across the mouth of the opening in the head of the wheel press. This cross-piece has a hole in the centre, which receives the bolt to be tested. A U-shaped yoke is then placed in the position shown in fig. 3 and holds the other end of the bolt. The open end of the yoke bears against the plunger of the press, as shown in fig. 1, which when forced out brings a tensile strain on the bolt or bar. The gauge registers the pressure and the strain. Fig. 2 shows the arrangement for bringing a transverse strain on a bar, and the two views will make it plain how this acts.

Mr. Finlay writes that "the use of a hydraulic press, with such an attachment as shown, will place a simple and inexpensive testing-machine within the reach of nearly all railroad mechanics." It should, however, be said, that while such an apparatus can be used to very good advantage to determine the relative quality of materials used, the absolute results must not be relied upon too implicitly, because the friction of the packing on the plunger in hydraulic presses is very great and is not uniform, and should be deducted from the pressure indicated by the gauges. The latter, too,

are very unreliable instruments, and should be frequently tested if any reliance is placed on their indications. In determining the quality of bar-iron, coupling-pins, links, etc., it is not important, however, to have absolutely correct data concerning their strength; it is only important to know how strong or how weak they are if compared with other similar material. The device we have illustrated may therefore be used to excellent advantage when no other better testing-machine is available.

A similar plan has been used at the Pennsylvania Railroad shops at Altoona.

Negotiations for an East-Bound Pool.

The following is the official report of the meeting at the Windsor Hotel, New York, last week:

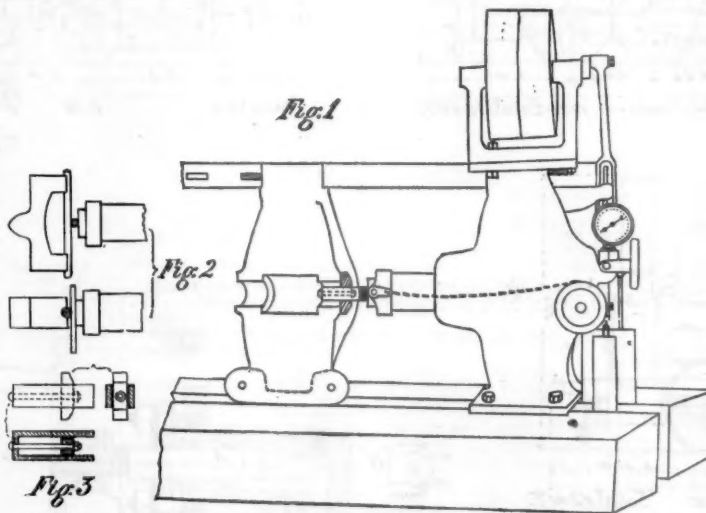
WINDSOR HOTEL, NEW YORK, Friday, Nov. 8, 1878.

Pursuant to the call of the Chairman, and to carry out the resolutions of the Saratoga Convention of August last, the Western and Trunk Line executive committees met at 11 a. m., Mr. J. N. McCullough, of the Pennsylvania Company, in the chair. The following members of the Western Committee were present:

J. N. McCullough, Pennsylvania Company.
John Newell, Lake Shore & Michigan Southern.
John King, Jr., Baltimore & Ohio.
J. H. Devereux, Atlantic & Great Western and Cleveland, Columbus, Cincinnati & Indianapolis.
A. L. Hopkins, Wabash and Toledo, Peoria & Warsaw.
J. E. Simpson, Vandalia Line.
H. B. Ledyard, Michigan Central.
J. Tillinghast, Canada Southern.
James Smith, representing J. C. McMullin, Chicago & Alton.

G. B. Spriggs, representing F. Broughton, Great Western. The following members of the Eastern Committee were present:

J. H. Rutter, New York Central & Hudson River.
G. R. Blanchard, New York, Lake Erie & Western.
John King, Jr., Baltimore & Ohio.
A. J. Cassatt, Pennsylvania.



APPARATUS FOR TESTING BAR IRON WITH A WHEEL PRESS.

L. Mills, representing G. W. Bentley, Central Vermont. Albert Fink, Commissioner, and acting Chairman Eastern Committee.

There were also present:

W. K. Vanderbilt, of the New York Central & Hudson River.

J. M. Osborn, of the Wabash.
Wm. Stewart, of the Pennsylvania Co.
R. C. Vilas, of the New York, Lake Erie & Western.
R. M. Fraser, of the Marietta & Cincinnati.
W. H. Perry, of the Canada Southern.
M. H. Smith and M. L. Doherty, of the Baltimore & Ohio.
J. T. R. McKay, of the Lake Shore & Michigan Southern.
Roswell Miller, of the Cairo & Vincennes.
E. B. Stahlman, of the Louisville & Nashville.
John C. Noyes, of the Indianapolis & St. Louis.
Wm. Duncan, of the Ohio & Mississippi.

The Chairman announced the object of the meeting. Commissioner Fink presented the following report, which was received:

TRUNK LINE COMMITTEE REPORT.

"Report of the Committee of the Eastern Trunk Lines to the Committee of Western Roads.

"Resolutions Nos. 3, 4 and 5 of the Saratoga Convention, held Aug. 23, 1878, provide that the Executive Committee of the Trunk Lines should prepare an agreement for the division of traffic to the several seaboard cities by each of said trunk lines to each city, with all the details for the government of the same; and that at the same time the Western Executive Committee should prepare an agreement for the division of traffic from the western common points essential to the maintenance of rates up to each of the trunk lines, and that when the said committees have prepared the details of this division of traffic, they shall meet together and adjust the same to each other, and put the same into effect, or call a general meeting of the railroads interested, if they deem the latter desirable.

"The Executive Committee of the Trunk Lines have waited for some time upon the action of the Western Executive Committee, it being impossible to make any division between the trunk lines until the Western Committee have divided the traffic up to the trunk lines. So far only partial action has been taken by the Western Committee, and as the time for effecting the final arrangements has, in the opinion of this Committee, already arrived, they have thought proper to request of the Western Committee a joint meeting as provided for in the fifth resolution of the Saratoga Convention, for the purpose of general consultation and the adoption of the proper means to carry out the intention and spirit of the Saratoga Convention. Another reason for calling this meeting is that the Committee of the Trunk Lines have come to the conclusion that the scheme for apportionment, as contemplated by the Saratoga meeting, cannot be carried out by the separate action of the Western and Eastern committees, but that the cooperation of all the roads in interest is absolutely necessary.

"The mere division of traffic from the few Western points

agreed upon by the Western roads at the Chicago Convention, even if they embraced all the points essential to the maintenance of rates, which this Committee believes they do not, does not fully comply with Resolution No. 4, which requires that the division of traffic should be made from Western common points up to each of the trunk lines.

"The Committee of the Trunk Lines, therefore, would respectfully request that this convention take into consideration, first, the necessity of increasing the number of points for the division of traffic between the Western roads up to the trunk lines; the trunk lines will then divide this traffic between themselves.

"The Trunk Line Committee have already suggested, in a letter addressed to the Chairman of the Western roads on Nov. 1, the following additional pooling points: Cairo, Terre Haute, Evansville, Logansport, Columbus, Lafayette, Toledo, Detroit, Port Huron, Joliet, Pekin and Milwaukee; and hope that the terminal roads at these points, as well as those at the original points agreed upon by the Western Committee, at their meeting of Sept. 5 and 6, at Chicago, at which a division has not yet been effected, will be able to agree upon a division during the session of this joint convention.

"It was made the duty of the Executive Committee of the Trunk Lines, according to Resolution No. 3 of the Saratoga Convention, to prepare an agreement for the division of traffic to the seaboard cities, with all the details for the government of the same. The Committee have had the matter under consideration, and they find the problem before them a most difficult one. They have come to the conclusion that the work to be done, necessary to accomplish the object of the Saratoga Convention, cannot be performed by general conventions, but that it requires the closest attention and study by a few parties, who should be selected for that purpose, and whose sole business should be to bring about an agreement between the parties directly interested in each particular traffic, the general conventions merely agreeing upon the pooling points and establishing the necessary organization for doing the work.

"The plan adopted of appointing separate and disinterested agents at each pooling point, to keep the accounts, seems to be proper, but the division from the original points of shipment to the seaboard cannot be carried out unless a general office is established in which the reports from the individual places, showing the amount of shipments over each separate route to the seaboard, can be kept and condensed, and from which office directions must be given, that must be obeyed, as to the uniform and proper manner of keeping these accounts by the separate agents, and as to the distribution of traffic over the different routes in accordance with the division to be agreed upon.

"The Committee are of the opinion that it will be impossible to at once agree upon a subdivision of the traffic after it leaves terminal points, in the manner contemplated by the Saratoga Convention, and they suggest that as soon as the division is made at terminal points, and as soon as the day has been determined upon on which the general pool is to commence, and after a proper organization for keeping the general accounts and carrying out the division of traffic has been established, the subdivision can then be made at such time as may be deemed desirable for each of the parties interested in the same traffic. This may be done without calling a general convention—merely by the action of the parties specially interested.

"To carry out these suggestions the Committee think it desirable, if not necessary, that this work should be carried out under a joint committee of the Eastern and Western roads, and that all matters relating to the division of traffic and the maintenance of rates be referred to that Committee; and the Trunk Line Committee request that said joint committee be appointed by this convention.

"They also consider it desirable that this General Committee should then select an Executive Committee, consisting of the fewest possible members representing all interests, which Committee shall give their special attention to carrying out the resolution of the Saratoga agreement, with authority to establish the necessary organization, and employ the necessary assistance to accomplish that purpose.

"For the Committee,

"ALBERT FINK,
Chairman."

The Chairman stated that he had received no reports from Chicago and Cincinnati committees, as to pooling from those points, and suggested that it might be advisable to adjourn until those committees were heard from.

On motion of J. E. Simpson, the meeting accordingly adjourned to 3 p. m.

Convened at 3 p. m.

The Chicago Committee reported that they had not as yet agreed upon percentages of division of tonnage. They, however, united in recommending an advance of five cents per hundred pounds in rates of freight on fourth-class, four and grain, taking effect 25th inst.

On motion of Mr. Devereux, the report of the Committee was received.

Mr. Devereux then offered the following resolution:

"Resolved, That in conformity with recommendation of the Chicago Committee, rates be advanced five cents per hundred pounds from Chicago to New York, and other points in proportion, taking effect Nov. 25."

Carried unanimously.

Resolution was then offered that rates on cotton from Memphis to Eastern points, be made on the basis of the present rates from St. Louis.—Carried.

Following was then offered by Mr. H. B. Ledyard:

"Resolved, That, taking effect Nov. 25, the rate on dressed hogs shall be 75 cents per 100 lbs., and that the rate on live hogs be advanced five cents per 100 lbs., Chicago to New York, and that all other points be advanced in same proportion; and until Nov. 25 the rate on dressed hogs shall be 70 cents per 100 lbs., Chicago to New York, other points in proportion."

Adopted.

On motion, meeting adjourned to 10 a. m., Nov. 9.

NEW YORK, Nov. 9, 1878.

Meeting convened pursuant to adjournment. Commissioner Fink reported that the Chicago roads were still unable to agree on percentages, but they had agreed to make reports of their tonnage daily from Chicago to the Commissioner, with the view of making the division as soon as practicable, and in the meantime they would strictly maintain the tariff rates.

Chairman of the Committee on Cincinnati pool stated that, owing to the absence of several members, it would be impossible to report to this meeting as to divisions from that point; but he would arrange for a meeting between the par-

ties interested, at the earliest possible date, and report result to the Chairman of this meeting.

Following was then offered:

"It is the sense of this meeting that the system of issuing free passes to shippers, or the use of tickets, or of any device in the way of free transportation, to influence and control business, is an evil that should be abrogated; therefore,

Resolved, That from and after Jan. 1 next, no passes, tickets, or free transportation of any kind, shall be issued, offered, permitted or allowed to any shippers, or consignors, or consignees, or agents of freight, whatever or wherever its destination.

Resolved further, That the Secretary of this meeting be authorized and directed to request and secure the assent and cooperation of such railroads as are not represented here today, to this action."

Adopted.

The following communication was read by the Secretary:

"Grand Trunk Railway of Canada,
General Manager's Office, Montreal, Nov. 4, 1878.
(AT NEW YORK.)

"Dear Sir: I have received from Mr. Fink an intimation that there will be a meeting in New York, on Friday next, of the Eastern and Western executive committees, charged with the carrying out of arrangements for pooling the east-bound competitive business.

"I regret that it will not be possible for me to attend this meeting; but, as it is probable that only some general plan for forwarding the work will be discussed, the absence of a representative of the Grand Trunk may not be of any material consequence. I assume that Mr. Bentley, representing the Central Vermont Company, will be present.

"I venture to suggest for the consideration of the Committee that it would be advisable to appoint from the two committees an Executive comprised of representatives of the trunk lines, and one or two of the Western or Southwestern lines, who would not through their eastern connections be directly represented, and that this committee should hold its meetings in New York, take up the various points separately, and endeavor to settle the divisions of the business from each.

"In this way progress might perhaps be made with the work which I fear will take a longer time to accomplish than has hitherto been anticipated, if a division of the traffic from every point is not to be made or become operative until a settlement has been made in respect to the traffic from all competitive points.

"So far as the Grand Trunk Company is concerned, I beg to say that we would be willing to agree that the traffic in which we are interested from competitive points should be divided from some given date—say the 1st of November; that the proportions in which it should be allotted to each company should be left to be hereafter determined, and that failing mutual agreement in respect thereto the matter should be submitted to arbitration.

"If some such plan as this could be adopted generally, it would probably remove any incentive to depart from the established tariff, and facilitate the completion of the work of establishing a general east-bound traffic pool.

"Excuse my troubling you with these suggestions, and believe me,
Yours very faithfully,
J. N. McCULLOUGH, Esq.,
J. N. McCULLOUGH, Chairman.

"Western Executive Committee."
On motion, the Report of the Trunk Line Executive Committee was now taken under consideration.

On motion, it was resolved to include the following additional pooling points, viz:

Cairo, Vincennes, Terre Haute, Evansville, Logansport, Columbus, Lafayette, Toledo, Detroit, Port Huron, Joliet, Pekin and Milwaukee.

The Chairman, referring to the recommendation in the report that "the work to be done necessary to accomplish the desired objects cannot be performed by general conventions, but that it requires the closest attention and study of a few parties selected for that especial purpose," stated that he hoped the meeting would authorize the employment of such assistance as might be found necessary. Experience has shown that but little progress can be made in such matters if the labor of organization and execution devolves entirely upon railway officers, whose other duties are sufficiently arduous.

On motion of Commissioner Fink, it was therefore
Resolved, That the Chairman of this meeting be authorized to employ such assistance."

Carried unanimously.

Mr. Blanchard then offered the following:

"*Resolved*, That the Western Executive Committee shall notify the Trunk Line Commissioner which of its members, or others who shall be designated by them, shall act as members of the General Committee; and the Trunk Line Executive Committee shall then decide which of its members shall be appointed on that Committee; and those so designated shall constitute the Joint Committee recommended in the report presented by the Trunk Line Committee."

Carried.

On motion, adjourned.

J. N. McCULLOUGH, Chairman.
W. DUNCAN, Secretary.

CIRCULAR.

NEW YORK, Nov. 9, 1878.

Mr. William Duncan having resigned his position as Secretary of the Western Executive Committee, Mr. N. Guilford has been appointed in his stead, and in accordance with the authority conferred upon me by resolution of the meeting held this day, I have authorized Mr. Guilford to act as the assistant of the chairman of the Western Executive Committee in all matters pertaining to the formation and operation of a general east-bound pool, as contemplated by the Saratoga Convention of August last, and as recommended by the Trunk Line Committee in the foregoing minutes.

He will aid in organizing and putting into practical execution pools at such Western points as have been or may be agreed to, and will also direct a proper and uniform system of pool accounts at all points.

His address, until further notice, will be Baltimore, Md.

J. N. McCULLOUGH,
Chairman Western Executive Committee.

The Transportation of the Mails.

The annual report of Gen. Thomas J. Brady, the Second Assistant Postmaster General, for the fiscal year ended June 30, 1878, has been prepared for the Postmaster General. The document is of unusual length, and the figures and recommendations that it contains, especially those that refer to the railroad service, are of more than ordinary interest. It appears that the cost of inland transportation for the year was \$16,034,021. The increase of the number of railroad, steamboat and star routes over the previous year was 683, in the aggregate length 9,146 miles and in the annual cost \$649,126. The small increase of 384 miles in the steamboat routes as compared with that of last year which was 2,802 miles is owing principally to changes in Florida, by which steamboat service was discontinued.

The appropriation for railway mail transportation during

the year was \$9,250,000. The actual cost, so far as adjustments were completed, was \$9,566,595, which is at the rate of \$316,595 per annum in excess of the appropriation. The difficulty, amounting almost to an impossibility, of preventing a deficiency of this kind is explained by the report. It is the duty of the department to provide for the transportation of all mailable matter which may be presented in the form prescribed by law. By act of Congress certain rates of compensation are to be paid for certain average weights of mails per day, and also certain rates for the compensation of railway post-office cars. As the Postmaster General has neither the authority nor the power to limit the amount of mail matter to be forwarded, which represents about 90 per cent. of the cost of railroad transportation, and as he does not prescribe the rates to be paid, there are only two ways in which he can reduce the expenditures for this purpose to the amount appropriated. These are—first, by discontinuing the mail service on certain roads; and, second, by discontinuing lines of railroad post-office cars, until the cost is reduced to the required figure. But owing to the laws which regulate the distribution of mails over new railroads, the cost of new service is not determined until the greater part of the fiscal year has expired. The necessity of re-weighing mail matter, in many instances, is another difficulty. It is, therefore, not easy to prevent a deficiency.

The amount appropriated for the current fiscal year is \$9,100,000. It is definitely ascertained that \$400,000 additional will be required to cover the cost of service for 1879. If no further funds are supplied by Congress, service to the above amount must be discontinued. It is estimated that \$10,250,000 will be required for 1880. The large immigration into the undeveloped farming and mineral lands of the West, Northwest and Southwest, creating a necessity for railways, and the facilities for constructing railroads cheaply at the present day, will doubtless cause the amount required for carrying the mails on newly-constructed roads to be greater than it has been for the last three years. As the increase from this cause was 5.66 per cent. in 1877, in spite of the hard times, it is reasonably considered that the increase for 1880 will be nearly 8 per cent., and on this theory the estimate is based.

Reference is made to the dissatisfaction of the railroads with the reduction of 5 per cent. in the rates of compensation recently made by Congress. The greater number have entered formal protest against the reduction, claiming that a corresponding decrease in service should be made, and asserting that they continue to perform the service temporarily only on account of the inconvenience which their refusal would cause to men of business on their respective lines.

In order to bring about a maximum degree of usefulness in the railroads in their proper work, it is recommended that the delivery of mails from stations to post-offices be performed by the government. Reasons for the recommendation are given. The idea presented by the Railway Commission that some arrangement can probably be made with the railroad express companies to perform side service for a sum not exceeding \$750,000 is not concurred in. Large savings in such service have been made in the past by inviting competition, and it is believed that the most reasonable rates can be obtained by pursuing the same plan in the future.

Opinion is given that the proposed law making space, speed and frequency the basis of compensation to railroads, contemplates a decided improvement on the present method, in which weight is the basis. It is suggested, however, that a gauge expressly stating the amount of space to be used will be necessary, and that its establishment should be the work of Congress. An elaborate plan of gauging the space is submitted for the consideration of Congress in connection with the bill.

After correcting a few inaccuracies in the report of the Railway Commission, a comparison of present service and rates with those of previous years is made. In 1854 the average rate per mile of annual transportation was 9.8 cents. In 1867 the average rate was 11.75 cents. In 1877 it was 10.5 cents. Notwithstanding the great increase in the weight of mails carried, and the improved facilities provided for its distribution in transit, the rate is but nine mills more than in 1854. The growth of the railway mail service will correspond to the increase in the nation's population. It is wrong, consequently, to look for reduced expenditures from year to year under this head, or to expect the amount which will be required to be accurately fixed.

As the duties of the officer who superintends the adjustment of railroad accounts, involving the expenditure of more than nine million dollars each year, are laborious and of great responsibility, it is recommended that his salary be increased to at least \$2,900 a year, and that he be recognized as 'Superintendent of Railway Adjustments.' It is suggested that the Postmaster-General be authorized by law to designate a uniform to be worn by any or all employees of the postal service, and that a penalty be fixed for the wearing of the uniform by one not entitled to do so. It is recommended that the present classification of railway messengers into mail route messengers, route agents, etc., be abolished.

There were 488,479 mail bags, 37,585 mail locks and 5,578 mail keys distributed during the year. A reduction in expenses under this head was made over the previous year of \$25,365.75, or more than 15 per cent.

The aggregate estimate for 1880 for mail transportation and the items incident thereto is \$20,790,000. The aggregate amount appropriated for the current year is \$18,706,673. The estimate shows an increase of \$2,083,327, or about 11½ per cent.

General Brady brings his report to a close by recommending the re-enactment of the former law by which the Postmaster General was authorized, when immediate service was required or a new route was established, to make a temporary contract, without advertising, for a period not to exceed twelve months. The time was subsequently limited to six months, causing embarrassment in the work of the office, making necessary additional miscellaneous advertisements every year, and thus increasing expense and labor without any apparent advantage.

THE SCRAP HEAP.

Railroad Manufactures.

Messrs. Hoopes & Townsend, of Philadelphia, have been awarded a gold medal at the Paris Exposition for their exhibit of bolts, cold punched nuts and "Keystone" boiler rivets. This is the highest premium awarded to any manufacturer, and the only gold medal for such articles. Hoopes & Townsend are now full of orders and report an encouraging prospect for business.

Henry L. Duguid, Receiver of the property and assets of the Bradley Manufacturing Co., in pursuance of an order of the Supreme Court, will sell at public auction at the late office of said company, on Wyoming street, in Syracuse, N. Y., on Friday, Nov. 29, all the remaining property and assets of said company, consisting of notes, accounts and demands in favor of and held by it.

The Pennsylvania Steel Co., at Baldwin, Pa., turned out in October 6,715 tons of rails and 500 tons of other steel.

The Joliet (Ill.) Iron & Steel Works have an order for 500 tons of steel rails for the St. Louis & San Francisco road.

The Lawrence Iron Works, at Ironton, O., started up Oct. 31, after a suspension of five months.

Kimberly, Carnes & Co.'s rolling mill, at Sharon, Pa., was to start up Nov. 11.

Paxton Furnace No. 2, near Harrisburg, Pa., has gone into blast, after lying idle four years.

Neshannock Furnace, at New Castle, Pa., has gone into blast again.

The car works of John L. Gill, at Columbus, O., have turned out and are building a number of narrow-gauge passenger and baggage cars, and some freight cars.

Morgan, Williams & Co., at Alliance, O., have recently shipped steam hammers to Pittsburgh, St. Louis and Johnstown, Pa., and have also completed several heavy shears, with a blade 111 in. long. They are also building some hydraulic cranes with ladles, etc., and a quantity of other tools.

The Indianapolis Rolling Mill last week delivered a large lot of re-rolled iron rails to the Terre Haute & Indianapolis road.

The Vienna correspondent of the leading German railroad paper writes, Oct. 14: "Two novel cars for carrying meat, on the Wilkes system and on the Tiffany system, were recently exhibited at the station of the Western Railroad. With these cars an Anglo-French company is about to undertake the transportation to London of fresh meat slaughtered here. A trial cargo of meat slaughtered two days before on the border between Russia and Bukovina, reached the Northern Railroad station in a Tiffany car and was inspected by the members of the City Market Commission. The freshness and fine appearance of the meat were acknowledged by all."

The largest contract for Portland cement ever made in this country, probably, was recently let by the United States government to Mr. Howard Fleming, of No. 10 Pine street, New York, being for strengthening the base of the Washington monument. The contract is for 10,000 barrels, 2,500 of which are to be delivered at once.

The "silicate enamel paint" has been used recently by the Western Railroad of Alabama, the Georgia Railroad, and the Michigan Car Co., and by the city of Boston, for bridges. The Georgia Railroad, after a trial, has ordered a large supply of it.

The Ontario Car Works, at London, Ont., are building a number of freight cars for the Eastern Extension road in Nova Scotia.

The Kansas Rolling Mill Co., at Rosedale, Kan., has an order for 1,100 tons of new iron rails for the Central Branch, Union Pacific.

The Variety Iron Works, at Pittsburgh, are building 50 tanks to be used for shipping oil to California.

The works of the St. Albans Iron & Steel Co., at St. Albans, Vt., have been closed, attachments having been placed on the property by several creditors.

The Eclipse Wind Mill Co., of Beloit, Wis., has just completed 11 water stations on the Denver & Rio Grande, and five on the Atchison, Topeka & Santa Fe. The company has five windmills and pumps under construction, for the Kansas Pacific, and orders from the Chicago, Burlington & Quincy, the Chicago, Milwaukee & St. Paul and the Chicago & Northwestern. The company has exported over 60 mills since July 1, and has nearly a month's export work now in hand. Its mills received the silver medal, the highest reward in that class, at the Paris Exposition.

The managers of the Allentown Iron Co., which has four furnaces at Allentown, Pa., have decided to suspend business. A meeting of stockholders has been called for Nov. 29, when a full statement of the financial condition of the company will be submitted.

Bridge Notes.

The Hamilton (Ont.) Tool Co. has received the contract for a new iron highway bridge over the Don River at Toronto.

The New York Bridge Co. has in hand a Whipple truss iron draw-span, 140 feet long, with roadway 20 feet wide and two sidewalks each 6 feet wide, over Dutch Kills in Long Island City, N. Y.; a highway bridge over the Mohawk River near Cohoes, N. Y., 1,900 feet long, to be supported on iron columns, and a steel wire suspension bridge of 550 feet span, with roadway 20 feet wide, over the Connecticut River, at Turner's Falls, Mass.

Notes.

Toledo baggage-smashers do their spitting gently, for the Bee of that city assures us that at the Union Depot there 7,840 pieces of baggage were handled in October and not a trunk handle was pulled off or even a satchel bruised. The fraternity generally will regard these Toledo men as degenerate members.

Town bonds to railroads and railroad men's wills are supporting the legal profession well just now.

Prices of Rails.

Sales are noted of 6,500 tons of steel rails at \$44 delivered at tide-water, and 1,000 tons iron rails at \$37.25 per ton delivered at a Southern port. Quotations at mill are \$42 to \$44 for steel and \$32 to \$36 for iron.

The recent spurt in old rails has passed over and the demand is again light. Nominal quotations, \$18.50 to \$19 per ton at Philadelphia. At Pittsburgh demand is also reported light, with prices at \$22 to \$23 per ton.

Sales are reported at New York of 1,500 tons and 250 tons steel rails on private terms.

Aid for the Yellow-Fever Sufferers.

The committee to secure subscriptions for the yellow-fever sufferers from the employees of the Chicago, Rock Island & Pacific road (composed of Messrs. E. St. John, W. M. Sage, N. M. Wheeler, A. R. Swift and H. J. Gleason) issued the following circular Oct. 29:

"The undersigned, who appealed to you Aug. 27, soliciting donations in behalf of the sufferers from yellow fever throughout the South, beg leave to report that the total subscriptions received in response thereto, amount to \$4,169.80, which sum has been paid by our Local Treasurer, from time to time (as received), to the Treasurer of the Citizens' General Committee, and by that committee forwarded to the various points in the South, which have been so terribly afflicted.

"While aware that our appeal was not received by many until they had already subscribed through the express and citizens' associations, yet the result is highly gratifying, by far exceeding our most sanguine expectations.

"That your sympathies are alive to the sufferings of humanity, and that you are ready to respond when the necessity arises, is evinced by your promptness and liberality in this case. In conclusion, accept our hearty thanks for your action."

—A Washington dispatch says that the Brazilian Government has offered to Col. W. Milnor Roberts the position lately declined by Capt. James B. Eads, the superintendence of the works of improving the navigation of the rivers of that country. Colonel Roberts has accepted the appointment, which is said to be for three years, at a salary of \$20,000 per year. Colonel Roberts is one of the best known engineers in the country; he has had 40 years' experience in railroad and bridge work, with a good deal of practice on river improvements. For some years past he has been Chief Engineer of the Northern Pacific Railroad.



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EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

FORMING AN EAST-BOUND POOL.

Those who have imagined the establishment of an organization for the distribution of traffic among the roads that heretofore have been competing with each other for it, and the determination of the part which each one shall receive, to be a problem to be solved at any odd moment when the railroad managers might happen to get together, are probably dissatisfied with the result of the meeting of the managers of the Western and Eastern lines at the Windsor House last week, the official report of which we publish elsewhere. Matters are left unsettled, they will say, and we know the danger of such a condition of things. It is true that a final settlement has not been made, that no agreement was reached on points of great importance and delicacy, and that the danger of a contest for business which will make the east-bound freight traffic unprofitable, as it was most of last winter, is greater than if the pools had been made at the several points where now it has only been agreed to try to make them, and some machinery provided for making them and keeping them effective. But we believe that any one who understands the circumstances and the disposition of the negotiating parties, far apart as were some of these in their views as to the shares they should receive, will think that the prospect for maintaining rates the coming winter has been materially improved by the Windsor House meeting. It would have been encouraging if the parties interested could have agreed upon the apportionment of the Chicago traffic, but though this is not done, and a large number of places has been added to the list of those where pools are to be made, so that one may say that there is now to be done more of the work of agreeing on proportions than there was in the first place, when pools were proposed at six points only, still there is now the great advantage that a way is provided to do the work. It will no longer be neces-

sary to get together the managers of half the leading roads in the country in order to determine some question which interests three or four of them and about which none has much information. This complicated and extremely costly machine (for it is with infinite difficulty that a complete representation of leading roads by their managers can be had at any one meeting) can now be replaced by a cheap and simple one, specially adapted for this kind of work, and occupied with no other. Why should Mr. McCullough come from Pittsburgh, Mr. Hickson from Montreal, Mr. Devereux from Cleveland, and Mr. Simpson from St. Louis to be present while it is decided how much of the Milwaukee freight shall go to the Northwestern, how much to the Milwaukee & St. Paul and how much to the Detroit & Milwaukee? Why not let these roads, or their arbitrators, settle this matter by themselves, with such full investigation of past experience and modifying circumstances as they have at command, or will give to a third party for special study?

Common and general action was necessary to decide whether there should be a combination, and at what points it would be necessary to divide traffic and to provide agents for the completion and carrying out of the several pools; but beyond this the convention is a clumsy instrument to work with, and its agents negotiating directly with the parties in each case specially concerned, and taking all the time necessary for the purpose in each case, are likely to be much more effective than the convention itself. Mr. Guilford now becomes Secretary of the Western Executive Committee and specially intrusted with negotiations for the formation of the pools that remain to be made, and with watching them and recording their results thereafter. It is his business and his whole business to do this work; statistics pass into his and Mr. Fink's hands, and they will work jointly to carry out the objects which the companies in convention have in a general way decided to be necessary. If the roads out of Cairo can't agree to-day or to-morrow as to how Cairo shipments shall be divided, the matter will not have to be postponed until the meeting of another general convention, but we may expect that Mr. Guilford and Mr. Fink will keep at them until they do agree or arbitrate. For each separate pooling point there is now a meeting without adjournment until a settlement is reached; for we may count the agreement to work at Chicago without a division until material is gained to serve as the basis of a division hereafter as a settlement, though not a final one, nor one that is as free from danger as an agreement on the terms of a division of traffic. So when any difficulties arise, there are men whose business it will be to take cognizance of them and try to settle them—the commissioners at the several points in the first place, and then the two central officers, one for the Western and one for the Eastern roads, before whom will naturally come the difficulties that may arise between different points. There will be some one to complain to and ask explanations of who cannot avoid the responsibility. Already we have had an example of the advantage of this. Not long ago there were complaints of cutting rates at Peoria, where a pool had just been made. Ordinarily this would have been the signal for demoralization of rates everywhere. It seems there was cutting at Peoria. But the Chicago roads, which were preparing to pool, and certainly did not wish to lose two dollars a ton on their five thousand tons of freight because the Peoria roads were throwing it away on their three hundred, investigated and protested. There was some one to protest to, and the difficulty, which otherwise might have resulted in the sacrifice of thousands of dollars daily for an indefinite period and even the destruction of the whole winter's east-bound through traffic, was arranged, without, we believe, affecting any traffic outside of Peoria.

The addition of eleven places to the six previously named as needing to be included in the combination will not add so much as might be thought to the difficulty of completing apportionments. Most of them are comparatively unimportant as sources of traffic, and only important to be included in the pooling points because if rates were maintained elsewhere and not there a great deal of traffic might be made to pass through them for the purpose of avoiding the pooling points. The recent contract for meats from Kansas City by way of Hannibal and Toledo was an example. At most of these places it is thought that there will be little difficulty in coming to terms. In fact, so far there has not been much difficulty in coming to terms at any point except Chicago.

With regard to Chicago, the agreement is to maintain rates and report shipments precisely as if there were a pool there, but not to make any distribution of traffic until some time in the future, when the results of the competition at strictly maintained rates may

serve as a basis, or one element in the basis, of the final division. There would seem to be a great temptation, if the results in the immediate future are to measure the proportion of traffic to be received for an indefinite period thereafter, to work more desperately for traffic now than ever before. Perhaps there is no objection to this if rates are maintained, and the results are not to be used as a basis if rates are not maintained; but when soliciting agents are put upon their mettle it is not always easy to keep rates firm, however disastrous the effect may be.

The Chicago traffic seems very difficult to settle. Last spring the contest over it was very severe, and the division made provisionally for three months, though accepted, was protested against by all parties concerned. When an effort was made to renew the combination in July, the contest was bitter, and the absolute refusal of the Chicago roads to divide their traffic broke up the whole attempt at combination at that time. But it is said that the interest which was most exacting and obstinate then was comparatively placable and yielding last week, and that the obstinacy was altogether in another quarter, heretofore conciliatory. For some reason the Chicago roads are unwilling to base a division on the experience of past years, which, if the shipments could be had for the periods when rates were maintained, would seem to afford the best basis, or an approximately correct one. Circumstances change somewhat, it is true, and it is possible that the length of time that rates have been maintained under existing circumstances—with the Baltimore & Ohio in the field—has hardly been sufficient, or that it is not easy to determine satisfactorily what traffic has been forwarded at regular rates; but we understand that the statistics for some years back have shown pretty uniform results, whether rates were maintained or not at 15 cents a hundred and at 45 cents a hundred, which indicates that, as might be supposed, no one has had the advantage in any of the contests, but that each has lost just about as much as it has gained by cuts and tricks. If this is true it would seem that the results of the past ought to be accepted in determining a division of traffic in the future.

Milwaukee is omitted from the list of pooling points, although a great part of the trouble in east-bound rates heretofore in the winter has been due to Milwaukee business. The Milwaukee shipments, however, will be all caught at Chicago, Port Huron, Detroit and Toledo, so that with pools and rates maintained at the last-named places, the cutting of rates can be confined to comparatively short lines across Michigan. At current rates they get less than nine cents per hundred for their part of the haul, and they are not likely to cut much below this, when they have to suffer the whole amount of the cut.

Altogether, we make progress. Two years ago many of the roads which now heartily favor the cessation of competition and the division of traffic would hardly have entertained the idea of a pool. A year ago, when most had got so far as to acknowledge it to be a good thing, if it only could be carried out, no one seems seriously to have proposed such an arrangement for east-bound traffic, and probably few thought that there was any use in trying to make one work. Instead, we had serious efforts made to maintain rates without dividing traffic. The disastrous result of the heavy winter traffic, if it did not convince the managers of the policy and practicability of pooling, at least made them ready to try it as a forlorn hope. Scarcely anything more discouraging than the result of the experiment of last spring could be imagined, and such a failure of a novel scheme usually has a deadly effect on what little faith there may have been in it, and puts an end to future trials until there has been time to forget the failure. But now we see stronger efforts than ever made to make a similar combination and apportionment, and evidently with much greater confidence than ever before in its desirability and its eventual practicability. In the face of all delays and complications and failures the railroad community has had before it the great success of the west-bound pool; this has been a constant incitement and encouragement, while the dismal experience in trying to maintain rates last winter, spring and summer, though supported by a traffic scarcely ever equaled in bulk, has strengthened the feeling that something radical must be done if there is to be any profit in the vast east-bound traffic hereafter.

Apparently we are going to have an earnest effort to make the apportionment system a success, an effort which will not be discouraged by difficulties or failures of the first experiments. The difficulties that have arisen in the course of recent negotiations do not in any case lead to the suspicion that some of the parties are not in earnest. Indeed, the contentions seem almost wholly among those who are incontestably

friendly to the general policy—eager even to have it adopted. With such a disposition manifested, it is not easy to believe that it will be allowed to fail.

Distribution of Grain at Atlantic Ports.

Not much interest seems to be taken this year in the proportions of the aggregate grain receipts which go to the several markets on the seaboard, though if this ever was an important matter it is doubly so this year, for the grain business of the year has been altogether unexampled. Perhaps, however, this is the cause of the quiet. The merchants complain when they have little to do. When they are busier than ever before they do not trouble themselves much about the success of their competitors, not even if it is more brilliant than their own. Now there has been so much grain coming forward this year, that all places have done better than before, taking the year together. Besides, it is probably becoming accepted as a fact that Baltimore and Philadelphia are going to have a grain business, and not let their admirable facilities which have cost so many millions (and make so poor direct returns) lie idle entirely.

Below we give the number of bushels and the percentage of the total received at each of the seven Atlantic ports for the ten months from Jan. 1 to Nov. 2 of the past two years:

Atlantic Grain Receipts for Ten Months Ending with October.

	1878.		1877.	
	Bushels.	P. c. of total.	Bushels.	P. c. of total.
New York.....	107,971,411	50.4	61,923,455	46.2
Boston.....	15,091,430	7.3	11,525,427	8.6
Portland.....	1,908,932	0.7	889,843	0.7
Montreal.....	12,427,430	5.8	11,875,728	8.8
Philadelphia.....	33,235,761	15.5	17,621,959	13.4
Baltimore.....	34,167,600	16.0	23,656,384	17.6
New Orleans.....	9,152,951	4.3	6,245,327	4.7
Total.....	214,250,515	100.0	134,038,123	100.0

There has been a gain in the aggregate receipts of the seven ports of no less than 60 per cent., so that it is not surprising that each market shows a larger business this year than last. The changes in relative rank, however (that is, in percentages of the total grain received at each port), have been very great, and New York and Philadelphia alone have gained.

Montreal has lost more in rank than any other place, receiving 5.8 per cent. of the total this year against 8.8 last year, for reasons that are not apparent. New York is the chief gainer, which may be partly accounted for by the longer season of canal navigation, though it must not be forgotten that it gained greatly before navigation opened.

Comparing New York with Philadelphia and Baltimore taken together, we have the following percentages:

	1878.	1877.
New York.....	50.4	46.2
Philadelphia and Baltimore.....	31.5	31.0

New York's gain, therefore, has not been at the expense of its two chief competitors, which, taken together, more than maintain their rank as grain receivers. But New York's gain just about equals the losses (in percentages) of Boston and Montreal.

The aggregate increase in the receipts of the seven ports has been 80,212,392 bushels. Of this increase 57.4 per cent. has been secured by New York, 19.1 by Philadelphia, 13.1 per cent. by Baltimore, and 5.2 per cent. by Boston, leaving but 5.2 per cent. for the other three ports. This distribution of the increase in the receipts is important to consider, as it gives some clue to the advantage of the several ports as markets aside from their demand for domestic consumption.

During the season of navigation New York has the great advantage of being the sole terminus of the greatest of the grain carriers, the Erie Canal, so that then, notwithstanding that Montreal then first begins to compete, it rapidly increases its proportion. Thus while navigation was closed last winter New York received 40.8 per cent. of the aggregate, and Baltimore and Philadelphia together 40.4 per cent. Now the three ports together have received just about the same proportion of the whole for the past ten months (81.9 per cent.), but New York has 50.4 to 31.5 for the other two. And there was a similar change last year; while navigation was closed then New York received 31.4 per cent. of the whole; Philadelphia and Baltimore, 47.4. At the end of October these percentages had changed to 46.2 per cent. for New York and 31 for Baltimore and Philadelphia. Thus during the season of navigation New York added 14.8 to its percentage last year, and 9.6 this; while Philadelphia and Baltimore lost 16.4 last year and 8.9 this.

A good deal of the success of the different ports depends upon the sources of supply in different years. If the grain comes chiefly from Minnesota and Wisconsin, Baltimore does not usually get much of it; but with a great crop in the Ohio valley it works to great advantage, being the nearest market and, what is more important, one at which that country is accustomed to

market grain. This has been the condition of things since harvest this year, so far as wheat is concerned. It will be worth while, then, to see how the traffic has been distributed for the three months since July, which the following table enables us to do:

Atlantic Grain Receipts, August, September and October.

	1878.		1877.	
	Bushels.	P. c. of total.	Bushels.	P. c. of total.
New York.....	48,427,770	56.7	35,779,415	53.5
Boston.....	5,187,491	6.1	4,874,421	7.3
Portland.....	137,423	0.2	159,250	0.2
Montreal.....	6,755,282	7.9	8,091,950	12.1
Philadelphia.....	11,355,651	13.3	8,408,119	12.6
Baltimore.....	12,346,100	14.4	8,234,300	12.3
New Orleans.....	1,174,954	1.4	1,368,076	2.0
Total.....	85,384,077	100.0	66,913,531	100.0

The first thing noticeable here is the much smaller proportion of increase in the quantities than for the ten months. Here the comparison is made with the very heavy movement of the crop of 1877. But seven of the ten months last year the movement was very light. For the three months there are three places that have received less than last year.

And here Baltimore as well as New York and Philadelphia has taken a larger percentage of the total than last year. But much the greatest gain has been at New York, notwithstanding the great crop in the Ohio valley, which, when it first began to move, in the last half of July and the month of August, seemed all bound to go to Baltimore. In August its proportion of the total Atlantic receipts was no less than 17.1 per cent., and there were two weeks in July when it was 22 and 23.3 per cent., and, more than all, the receipts were chiefly of wheat, which theretofore had not gone to Baltimore in large quantities. For these three months of the new crop year New York compares as follows with Philadelphia and Baltimore taken together:

	1878.	1877.
New York.....	56.7	53.5
Philadelphia and Baltimore.....	27.7	24.7
Three ports.....	84.4	78.2

As in the ten months, New York's gain is not made at the expense of Philadelphia and Baltimore, but chiefly at that of the markets north of it, especially Montreal, which seems to have received an unusually small proportion of the grain this fall. New York's increase in the three months is equal to 68½ per cent. of the aggregate increase of the seven Atlantic ports.

The yellow fever seems to have had comparatively little effect on the receipts of New Orleans, though of course it is not now possible to say how great those would have been this year but for the epidemic. But compared with last year the decrease is small, and the total is insignificant, and evidently not much more than was required for domestic consumption.

There remains one more month of open navigation, but the season is already so far advanced as to make it probable that New York's proportion of the total Atlantic receipts will be considerably larger this year than in 1877 or 1876.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Pittsburgh Southern.—Extended from Finleyville, Pa., southwest to Washington, 6 miles. It is of 3-ft. gauge.

Cumberland & Ohio, Southern Division.—The first track is laid from Lebanon, Ky., south 5 miles. It is of 5-ft. gauge.

St. Paul & Pacific.—The track of the *St. Vincent Extension* has been extended northward 30 miles to the Manitoba line at St. Vincent or Emerson.

Atchison, Topeka & Santa Fe.—The track of the *New Mexico Extension* is extended from Trinidad, Col., south 12 miles.

This is a total of 53 miles of new railroad, making 1,777 miles completed in the United States in 1878, against 1,867 miles reported for the corresponding period in 1877, 1,981 in 1876, 1,128 in 1875, 1,594 in 1874, 3,228 in 1873, and 5,982 in 1872.

THE THROUGH GRAIN MOVEMENT seems to have attained exceptionally great proportions. We have no definite statistics of the amount of grain shipped from Northwestern farmers' stations through to the East without intermediate sale or transshipment at a Western collecting market, like Chicago or Toledo; but we have figures which enable us to infer something as to its growth, which we have used heretofore. These are the differences between the shipments from the eight leading Northwestern markets and the receipts at the seven Atlantic ports. The eight Western markets include all the markets where very large quantities of grain are bought and stored before shipment eastward. But the seven Atlantic ports do not include nearly all the grain consumed in the East. If we had all the deliveries at interior points, these, added to the receipts of the seven ports, would give the total of the grain sent east, and the excess of this over the shipments at the eight Northwestern markets would give approximately the amount forwarded directly from the interior stations. Not having the interior Eastern receipts, the differences must all be much less than the amount of direct through shipments. But though the figures we have do not represent the amount of

this business, still, as the interior Eastern consumption and receipts may be reckoned nearly stationary—at least not decreasing—our figures will show very well the growth of the business. Now, for the ten months ending with October, 1873, the shipments of the eight Northwestern markets were 11,618,275 bushels more than the receipts of the seven Atlantic ports; but in subsequent years there have been excesses of Atlantic receipts over Northwestern shipments, as follows:

1874.....	5,244,589	1877.....	11,896,586
1875.....	6,821,231	1878.....	58,371,937
1876.....	6,253,041		

Thus the grain-growers appear to be dispensing with the services of the Northwestern markets to a greater and greater extent; but the full extent to which they do so is not indicated above from the fact that a very large part of the grain not sold or transferred at any of the eight reporting markets still passes through them, and at some of them (certainly at Chicago, where more passes than anywhere else) is counted both as a receipt and a shipment. On the other hand, something must be credited to markets which do not report with the eight, including such points as St. Paul (nearly all of whose grain passes through one of the reporting markets however) and Kansas City, which has a considerable business of recent growth. But with all allowances it appears that there has been a great growth of direct shipments from the farmer to the seaboard. In 1876, for the ten months, the Atlantic receipts were but 4½ per cent. greater than the shipments of the eight reporting Northwestern markets; this year they have been 37½ per cent. greater. This change is, of course, encouraged by the growth of through rail shipments. When the grain does not need to be transferred from car to elevator and from elevator to vessel, there seems to be no good reason why it should stop at all, and the services of the Northwestern market are no longer needed for that grain. It dispenses with one set of elevators and grain merchants. This is unfavorable to the Northwestern grain markets, but it is a natural development of the business. A heavy winter traffic seems likely to lessen the aggregate yearly grain business of such cities as Chicago and Milwaukee, though, doubtless, it rather promotes their merchandise and lumber business.

OCTOBER EARNINGS have been reported so far by 21 railroads, of which twelve show an increase as compared with October last year, which for a great many roads was a month of exceptionally heavy traffic and profit. The "spring-wheat roads," if we may so call them, continue to show decrease, but not such tremendous ones as for a month or two previous. The Chicago & Northwestern, which has about half its mileage greatly affected by the bad spring-wheat crop, has earned very nearly as much as last year. In the aggregate, however, the decreases exceed the increases, but only by 1½ per cent.

The Northwestern roads that are most affected by the light wheat crop of Wisconsin, Minnesota and Northern Iowa show the following results for the past five years, for the month of October:

	1878.	1877.	1876.	1875.	1874.
R. C. R. & N.....	\$141,619	\$171,533	\$111,441	\$136,125	\$142,314
C. M. & St. P.....	825,000	1,183,134	817,250	974,392	862,163
C. & N. W.....	1,568,858	1,588,776	1,403,992	1,409,108	1,407,975
Iowa Lines, Ill.					
Gen.....	142,106	204,290	181,741	210,407	208,237

* Proprietary roads not included in these three years. They earned \$137,562 in October, 1877—the most favorable year they have ever had.

It is thus only in comparison with the exceptionally favorable year 1877 that even these roads make a very unfavorable showing this year. They have all but one done better than for the corresponding week of 1876 (which also was an unfavorable year), and altogether have earned nearly as much as in 1875, which was a good year.

The only very large increases are on new roads or roads with a considerable increase of mileage, but the Kansas Pacific and the Iron Mountain have improved materially. Another great change, the cause of which is not easily apparent, is the large decrease of about 30 per cent. on the Illinois Lines of the Illinois Central, which is in spite of an addition of about one-sixth to the mileage, and, we believe, excellent crops almost everywhere on the road. The interruption to its Southern business by the prevalence of yellow fever counts for something, but we should not expect so great damage from this cause. That cause will not operate in November, and, indeed, the return of refugees has given exceptional activity to passenger traffic.

LAKE RATES have risen during the week ending Tuesday last from 3½ to 4½ cents per bushel for corn from Chicago to Buffalo, and about a quarter of a cent more for wheat. From Milwaukee, whence moderate shipments of wheat are made this fall, rates for some time past seem to have been a little higher than from Chicago, and last Tuesday were reported at 4½ to 5 cents a bushel for wheat to Buffalo. Sailing vessels are now making their last trips down the lakes, but, as last year, the prospect of having no outlet except by rail seems to have had little effect on rates, which are just about the same as last year at this time. Formerly rates in November were much higher than earlier in the season, as it was regarded as the last chance to forward grain.

Canal rates remained steady until Monday, but then fell, and again Tuesday, closing at 6½ cents a bushel for wheat from Buffalo to New York and 6 cents for corn. Rates through from Lake Michigan by water are thus about as low as they have been, but shipments made thence after this date are not likely to get through by canal. Canal boats starting down now will not have time to return.

Ocean rates from New York to Liverpool reported Tues-

day last were 7½d. per bushel for grain by sail and 7½d. to 8d. by steam; ½d. to ¾d. per pound for cotton, 37s. 6d. per ton for bacon, 47s. 6d. per ton for cheese, 3s. 3d. per barrel for flour, 4s. for apples, and 5s. for oysters—all by steam. To Cork for orders charters were reported at 5s. 10d. to 6s. per quarter for grain from New York and from 5s. 10½d. to 6s. from Baltimore. To Havre by steam 20 cents per bushel for grain and ½d. to ¾ cent per pound for bacon and lard, etc., while a sailing vessel was chartered for grain to Havre at 5s. 9d. per quarter—17½ cents per bushel of 60 lbs.

Quotations are rarely given for rates by steamers from other ports than New York, but we notice this week wheat from Baltimore to Liverpool quoted at 8½d. to 9d. per bushel, and cotton from New Orleans at ½d. to ¾d. per pound, rates from New York the same day being 7½d. for wheat and ½d. to ¾d. for cotton. The New Orleans rate would thus appear to be about 50 per cent. higher than the New York rate.

THE PAY FOR CARRYING MAIL BY RAIL is considered in the report of the Second Assistant Postmaster-General, an abstract of which we publish elsewhere. He condemns the present system of paying by weight, which is certainly exceedingly crude and unequal in its operations, and recommends making space, speed and frequency the bases of compensation. These are all important elements in the cost of the service, and certainly should all be considered; but even when they are considered a uniform rate for different roads must often work great injustice. There is just as much reason for making the rates for mail carriage to suit each special case as there is to adjust the rates on other kinds of traffic. One road may properly be paid ten times as much as another for carrying the same weight and bulk of mail the same distance at the same speed, and each road makes a case for a distinct contract, which might be adjusted, as in Great Britain, by an arbitrator if the representatives of the department and of the railroad company could not agree.

The total cost of railroad mail transportation in the last fiscal year was \$9,568,565, which must have been at the average rate of about \$123 per mile of road. Comparatively a very small portion of the mail can now be carried on inland routes except by rail, though there is a great extent of inland highway and water routes; but still the cost of rail transportation was but 57½ per cent. of the total cost of inland transportation. The appropriation for mail transportation for the current year is but \$9,100,000, and it is already known that \$400,000 more will be needed if the present service is maintained. If no more is appropriated, service must be discontinued on some routes, or postal cars taken off somewhere.

THE CHICAGO, ROCK ISLAND & PACIFIC is among the roads which have recently been enjoying a season of exceptional prosperity—a great business before harvest, and—unlike some roads a little farther north—an even greater business after harvest. For the half-year ending with September it reports its gross earnings (with mileage substantially unchanged) no less than 15½ per cent. greater this year than last, and last year, for part of this time at least, the receipts were exceptionally large. For the corresponding half-years the gross earnings have been since 1873 (with increased mileage in the last two years):

1874.....	\$3,648,335
1875.....	3,857,113
1876.....	3,565,916
1877.....	3,873,356
1878.....	4,478,095

This road is situated so as to profit by almost all kinds of crops—wheat, corn, hogs and cattle—and is not likely to suffer very greatly by the failure of any one. And it profits greatly by the growth of population and production in Western Iowa, Nebraska and Kansas, which doubtless has much to do with the great gain of this year.

THE LIFE OF STEEL RAILS on a trunk line is said to be turning out to be from five to ten years, and the wear of the rails bought of late years indicates that the shorter rather than the longer period named will be their average life. The traffic is probably four or five times as great as the average of American railroads, but still the wear is more rapid than was expected, and more so, indeed, than experience with the rails first laid gave reason to expect. That is, steel rails appear not to be made so durable now as they used to be, and the roads are beginning to see the necessity of making and insisting upon the fulfillment of certain pretty strict specifications as to the quality of the steel in the rails delivered to them. Hitherto there seems to have been no very definite idea of the qualities required for the most durable rail; but there begins to be some knowledge on the subject.

EDITORIAL LETTERS.

III.

FROM DETROIT TO CHICAGO.

In the last letter we omitted to state that at the shops of the Pullman Palace Car Company in Detroit work is progressing on an order for twenty cars for the Metropolitan Elevated road of New York. These cars are of the same design as those now in use on that line, which have excited unusual admiration, and show what railroad cars may be if designed by persons of good taste combined with the requisite practical knowledge to adapt the mechanical construction to the service in which they are employed.

The shops of the Pullman Company are also at work on two new sleeping cars for the Chicago & Alton Railroad, and a hotel car for "The St. Louis Line," but we omitted to note which of the roads it is intended to run on. A great deal of work is also in progress on the repair and improvement of the older cars owned by the company.

In traveling over the Michigan Central road, and since then over some of the other Chicago roads, it was noticed that the semaphore signal has come into use at many places, chiefly as a distant signal at stations, where it is used to warn approaching trains when the track is obstructed or "fouled," as they say in England. For a main line switch signal, an elliptical-shaped target is used, which is mounted on top of a tall post with a rectangular frame which incloses or surrounds the target like a frame around a picture. When the switch is set for the main line the target is turned edgewise, and is invisible, or nearly so, to an approaching train; but when the switch is set for a side track the target is turned at right angles to the track. The target is worked by a vertical shaft on top of which a lamp is mounted in the usual way. At station buildings a patented signal is used, but the name of the inventor, who is a Canadian, is unfortunately forgotten. This signal is also an elliptical disc, similar to the switch target, but smaller, and is operated by the telegraph-operator. In each of these signals a red light is used at night, and this always means "stop." Each of the three different signals means the same thing by day-time. The question then naturally arises, why not use the same kind of signal in these different places in day-time as well as at night. At present a locomotive runner in approaching a station must look out first for a semaphore, next for a switch-target, and third for the station-signal, before he is sure that the line before him is clear. A complicated system of this kind seems much more liable to cause accidents than the simpler one in which one signal only is employed to stop trains. The greater distinctness of a semaphore signal over every other form would seem at once to decide its superiority. If a locomotive runner knew that the arm of a semaphore extended at right angles on the left side of post always and under all circumstances means "stop," and that when there is no such arm displayed the road is clear, it would give him a feeling of confidence when all is right, and of caution when it is not, which the present diversity of signals would seem to destroy, or which at least at times must be very confusing. The Michigan Central road is not in any way remarkable for either the simplicity or the indefiniteness of the signals used—if any thing, they are superior to those used on many other lines; but the diversity is referred to as an evil which needs very much to be reformed all over the country.

At Jackson there was only time for a brief visit to the shops. Mr. Edgerly is busy at work on new engines which he is building. He now has twelve in progress, which are of the pattern he has adopted, with 17×24 in. cylinders and 5 ft. driving-wheels. The tenders of these engines are very heavy, and in order to carry the weight he uses an axle with 4×8 in. journals. With these he reports that there is no trouble from hot boxes, whereas with the older and smaller sizes there was constant annoyance from this cause. Mr. Edgerly also reports considerable trouble from the cracking of fire-box plates, in radial cracks from the stay-bolts. The difficulties in the way of using steel for fire-boxes, it seems, are not yet all overcome, and it will be well for master mechanics to watch them very closely in the future, as they seem to have done in the past. In this work the Master Mechanics' Association has been of much service, and their yearly reports have done much to increase our knowledge of this subject, or at least of the phenomena, if not of the theory and causes of the evils, which at first seemed to be inherent in the use of steel for boilers.

A visitor from the East, as soon as he arrives in Chicago and meets the railroad managers of various grades, and the manufacturers of railroad material, supplies and equipment, is at once impressed with the fact that a much greater degree of prosperity now exists here than among Eastern roads and manufacturing establishments. Every line almost centering in Chicago has had an insufficient equipment of freight cars, and most of the shops in the West engaged in manufacturing such cars and nearly every wheel foundry and axle forge is busy, and it is not an infrequent thing now to hear of a firm or company refusing orders on account of low prices offered. An advance may therefore be looked for, and manufacturers may reasonably expect a more profitable business during the coming year. The reason for the activity here, and the dullness in business in Eastern establishments is not hard to find. The large crops of the West are now overflowing the granaries and cribs of the Western farmers, and to transport these crops more freight cars are required. What is quite noticeable is that this activity, until quite recently, does not seem to have increased the demand for locomotives. This is due probably to the fact that a locomotive has a longer life than a freight car, and when the depression in business began in 1873, nearly all the lines here and elsewhere had a larger supply of motive power than was needed for the business which followed. Besides this there has been a great increase, not only in the train-loads hauled by locomotives, but also in the amount of service or the number of miles run by them on different lines. Locomotives are, however, not immortal, and they pass out of existence like all other human creations, and there is evidence now that the service required of them has caught up with the supply, and probably a liberal number of contracts for engines will be given out during the present winter, which will be good news to the idle locomotive builders in Eastern shops. During the Centennial year many lines increased their equipment of passenger cars, so that the subsequent falling off in business left them with a large overstock. There are few signs, excepting from far Western roads, that there will be any immediate demand for cars of that class. The fact is that a revival of business begins at the source of wealth, which is agriculture. This

has created a demand first for cars to carry its products, and next it will be for locomotives to draw the cars, and after the farmer has paid his debts and he and those who deal with him have prospered, they may spend some money in traveling and for other luxuries. At present the effects of agricultural prosperity have not advanced as far as passenger cars. Its effects may be expected, however, before long in many other branches of business.

As most of our Western readers know, the general office of the Pullman Palace Car Company is in Chicago, and it is here that all the records of the company are concentrated and classified. Ever since its organization experiments have been made with all inventions and devices which have promised to improve the luxurious cars which it owns, or will in any way add to the comfort or economy of their service. This has been especially the case with wheels. Nearly all the different kinds that are made have been tried under their cars, and accounts have been kept with such care and precision that some intelligent deductions may be drawn therefrom. Through the consideration of Mr. A. B. Pullman, some interesting and valuable data were furnished us from these wheel records. Thus the average mileage of 848 chilled cast-iron wheels, 33 in. in diameter, was 47,906 miles. Another lot of 438 wheels of the same kind and size made an average mileage of 49,263. This includes those wheels made flat by sliding, and all other causes of failure.

The company now has in use 900 of Allen's steel-tired wheels, 42 in. in diameter, with paper centres. The first of these were put under cars in May, 1876. All of these wheels and their original tires are still in use, but 66 of the tires have been re-turned, and for the first time we are able to give the average mileage from accurate records of the service of such wheels. The tires used are all manufactured by the John Brown Company and are of Bessemer steel.

The following is the mileage of these tires up to the time that they required to be re-turned the first time:

Statement Showing Mileage of 42-in. Paper Wheels to First Turning of Tires.

Numbers.	Mileage.	Numbers.	Mileage.
235.....	83,426 276.....	127,874	
236.....	83,426 277.....	127,874	
237.....	83,426 278.....	127,874	
238.....	83,426 279.....	126,874	
239.....	96,166 280.....	127,874	
240.....	96,166 281.....	76,914	
241.....	96,166 282.....	76,914	
242.....	96,166 283.....	130,458	
243.....	96,166 284.....	130,458	
244.....	96,166 285.....	130,458	
245.....	125,670 286.....	130,458	
246.....	125,670 287.....	130,458	
247.....	125,670 288.....	130,458	
248.....	125,670 289.....	90,506	
249.....	125,670 290.....	90,506	
250.....	125,670 291.....	130,458	
251.....	95,395 292.....	130,458	
252.....	95,395 293.....	93,236	
253.....	112,403 294.....	93,236	
254.....	112,403 295.....	100,437	
255.....	116,143 296.....	100,437	
256.....	116,143 297.....	111,357	
257.....	116,143 298.....	111,357	
258.....	116,143 299.....	117,727	
259.....	116,143 300.....	117,727	
260.....	116,143 301.....	111,357	
261.....	97,033 302.....	111,357	
262.....	97,033 303.....	117,727	
263.....	127,874 304.....	117,727	
264.....	127,874 405.....	111,357	
265.....	96,934 306.....	111,357	
266.....	96,934 307.....	108,386	
267.....	127,874 321.....	108,386	

Total mileage of above 66 wheels.....7,309,772
Average.....110,754½

Although the average mileage of those is very high, it is yet probable that when all the wheels are re-turned, the average of the whole will be very much increased, because it is the poorest and most defective tires which require re-turning first and those which make the greatest mileage will come in last. The following list of the service of 24 wheels, which have not yet been re-turned and are still in service, or good for service, under cars on the Chicago & Alton Railroad, indicates this:

Wheels Under Springfield and Joliet, Chicago & Alton Line, and Not Turned.

Numbers.	Mileage.	Removed April 12, 1878.
215.....	144,572	
216.....	191,121	
217.....	191,121	Still in service Oct. 31, 1878.
218.....	191,121	" " " "
219.....	191,121	" " " "
220.....	191,131	" " " "
221.....	191,121	
222.....	145,293	Removed June 8, 1878.
223.....	145,293	
224.....	191,121	Still in service Oct. 31, 1878.
225.....	191,121	" " " "
226.....	191,121	" " " "
227.....	194,700	" " " "
228.....	194,700	" " " "
229.....	194,700	" " " "
230.....	194,700	" " " "
231.....	194,700	" " " "
232.....	194,700	" " " "
233.....	194,700	" " " "
234.....	194,700	" " " "
235.....	194,700	" " " "
236.....	179,259	Removed Aug. 15, 1878.
237.....	194,700	Still in service Oct. 31, 1878.
238.....	194,700	

Total.....4,430,257
None of above 24 wheels have been turned up.
Total mileage.....4,430,257
Average.....184,594

On the Pennsylvania Railroad in 1877 the average mileage of 1,348 wheels removed from Pullman cars was 55,744 miles. Of those 609 were still good for service and were put under freight cars. The average mileage of 739 wheels which were unfit for further service was 68,604 miles.

The price of 33-in. cast-iron chilled wheels now varies from \$9.50 to \$14, according to quality and the reputation of the maker. The old wheels, when worn out, are worth about \$4.50 for scrap. From the report of the Pennsylvania Railroad it would seem to be safe to assume that a good cast-iron wheel will give a mileage of 50,000 miles, but probably considerable allowance must be made for the influence of the excellent track in prolonging the life of the wheels on that road. It is also probable that wheels which will make an

average of 50,000 miles will cost more than \$9.50, and at the present time less than \$14.

The average mileage of the Pullman cars may be taken at 125,000 miles per year. The cost of a 42-in. paper car-wheel complete is \$85, and the cost of renewing a tire \$45. It also costs \$2 apiece to fit and replace cast-iron wheels and \$4 each to turn a 42-in tire.

One element of uncertainty in these data is the cost of cast-iron wheels which will average a service of 50,000 miles. Nearly all makers of chilled cast-iron wheels profess to be prepared to guarantee their wheels for a service of 60,000 miles, and some of them are selling wheels for \$9.50 and \$10 each. On the other hand, railroad managers say that when manufacturers are required to make a contract with such a guarantee, difficulties are often encountered, and that, as a matter of fact, the cheaper wheels will not fulfill the guarantee. It must also be kept in mind that in calculating the cost of wheels all the causes of failure must be taken into account, and not only those due to defects in the wheels. Thus, if a wheel is made flat from sliding, it costs a railroad company just as much as though the wheel failed from a defect in its manufacture. In the one case, though, the manufacturer usually must assume the risk and in the other case not. The Pullman Company, which has no control over the brakemen or the locomotive engineers on the lines over which its cars run, therefore, requires a guarantee which will cover all causes of failure, whether due to defects or not, and it is on this basis only that the actual cost of wheel service can be calculated.

The figures given will supply the necessary data for calculating the relative cost of 33-in. cast-iron and 42-in. paper wheels by the method heretofore described in the *Railroad Gazette*. Or, at least, at the prices named we can estimate the cost of cast-iron wheel service, and by a parallel calculation determine how far the paper wheel must run to be as cheap. It may be said, though, that the wheels of the same size should be compared together. This, however, does not seem important, because to most railroad men the important thing to know is which is the cheapest kind of wheels without reference to their size. It may be that cast-iron will give better service in a small wheel and steel in one of larger diameter. If so, such material should have the advantage inherent in it. Thus far we have failed in getting any reliable or accurate data concerning 33-in. steel-tired wheels.

At present the Pullman Company is contracting for wheels on the ground of service rendered. This is done by buying the wheels and paying for them at a stipulated price. When the wheel is worn out, or has failed from any cause, the old wheel is shipped back to the manufacturer, and he is charged with its original cost and credited with the service it has rendered at the rate of 18 cents per thousand miles on Western roads, and 20 cents on Eastern lines, which are usually more crooked than those at the West, and therefore more destructive to flanges. The Pullman Company in such cases fits the wheels to the axles.

Another matter of very great importance, which has been much neglected on most railroads, is the service performed by brass journal-bearings for car axles. This has recently received careful attention from the Pullman Company. Bissell's stop wedge and brass, which was referred to in the letter from Detroit, has been used a good deal. A set of these brasses which originally were lined with lead was shown in the office which had run 60,000 miles and which had just fairly worn out the lead. The end bearing was worn away about $\frac{1}{16}$ of an inch. The brasses will be re-lined with lead and will then apparently be as good as new and be ready for fresh service. The brasses were used on a large journal, $3\frac{1}{2} \times 8$ in., which, it will be remembered, is without the usual collar on the outer end. Another set of twelve bearings has averaged 59,018 miles, the maximum mileage of one pair being 74,046 and it is still in use. This arrangement of journal-bearings seems to be the most promising improvement in axle-boxes now in use. Some experiments have also been made with the dust-guards. The part of the journal-box which forms a chamber for the dust-guard is cast in a separate piece, and the back of the box and the chamber in the piece are both accurately planed. The dust-guard is formed of two pieces of brass, also planed and fitted in the chamber, and provided with springs to press the two parts against the axle. The piece forming the dust-guard chamber is then bolted against the back of the box. This is simply an improvement in the way of fitting the dust-guard, which is thus made an accurate mechanical piece of work, instead of the rude contrivance it usually is. There is certainly hardly any part of the rolling stock of railroads which seems to be so rude and ineffective as the ordinary dust-guards and axle-boxes in use.

A very interesting piece of work has quite recently been planned by Capt. G. J. Lydecker, of the United States Engineer Corps, for the improvement, or rather construction, of the Chicago harbor. In order to protect the mouth of the Chicago River from northeasterly storms, a breakwater was built a few years ago out from the shore on the north side of the river so as to extend about 3,500 feet beyond the track of the Illinois Central and the Michigan Central railroads. At right angles to the extremity of this, and parallel to the railroad, another breakwater has been built extending southward from the mouth of the river, 4,037 feet, the southern end coming opposite to Van Buren street. The south side of the space inclosed by this is, however, open and exposed to storms. What is now proposed by Captain Lydecker—and his proposition has been endorsed by a commission of engineers appointed for the purpose—is to leave a passage-way for vessels 800 ft. wide at the extremity of the present breakwater, and then build an-

other one in a diagonal direction toward the shore for a distance of 2,890 feet. The end of this will come opposite to Twelfth street. The area inclosed in this way, and which will form an outer harbor for Chicago, will be about 490 acres. This will be a place of refuge for vessels coming to Chicago where they can lie until taken up into the river by tug boats.

The present breakwater was built of timber cribs filled with stone, and sunk to the lake bottom, where they were allowed to settle. The result after a year or two is that the different sections assume very irregular positions, and the upper portions of the timber work must then be built or fitted to the irregular position of the cribs. It is proposed, with the new cribs, first to drive piles and then saw them off a little above the bottom of the lake. The cribs will then be sunk so as to rest on these piles and be filled with stone. The bottoms of the cribs are made with openings on the sides through which the stone can fall, and it will thus fill up the space underneath it and between the tops of the piles and the bottom of the lake. This plan has been successfully adopted at Joliet, and avoids the difficulty of the irregular settlement of the cribs.

The improvement is one which is much needed for the commerce of Chicago, and which will make the passage to and from the river much more safe than it now is.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:
Baltimore & Ohio, annual meeting, at Camden Station, Baltimore, Nov. 18, at 10 a. m.
Denver & Rio Grande, annual meeting, at the office in Colorado Springs, Col., Nov. 20, at noon. Stockholders will be called on to vote on the lease of the road to the Atchison, Topeka & Santa Fe.
Western Association of General Passenger and Ticket Agents, meeting to organize the Association, to be held at the Coates House, Kansas City, Mo., Nov. 19. The call is to all roads south of Minnesota and west of the Mississippi.

Dividends.

Dividends have been declared as follows:
Connecticut River, 4 per cent., semi-annual, payable Jan. 1. Transfer books will close Dec. 14.
Wilmington & Weldon, 3 per cent., semi-annual, payable Nov. 30.

Railroad Commissioners' Convention.

Telegraphic dispatches report briefly that this convention met in Columbus, O., Nov. 12, commissioners being present from Maine, Vermont, Massachusetts, Connecticut, Virginia, Ohio, Michigan, Illinois, Missouri and Iowa. After organizing, the first proceeding was the appointment of a special committee to consider the system of accounts and mature a system of uniform railroad bookkeeping. The committee was instructed to invite the cooperation of the leading railroad accountants of the country in the performance of this duty, experts especially named being Messrs. M. M. Kirkman, of Chicago; W. P. Shinn, of Pittsburgh; C. P. Lealand, of Cleveland, and Ford, of St. Louis. A committee was appointed to report on matters of taxation as respects railroads and railroad securities in various states, as well as foreign countries, and report a plan for an equitable and uniform system of such taxation at the next convention.

On the second day, Nov. 13, a resolution was adopted appointing a committee to consider the true status of railroad corporations in the body politic, and report the result of their investigations to the next convention. A resolution was offered declaring it to be the opinion of the convention that Congress should give very early attention to the revision of the patent laws, and should enact, as soon as practicable, such amendments as seem just and proper.
After an earnest discussion, this resolution was withdrawn. After appointing committees on various subjects, to report at the next meeting, the convention adjourned to meet in January next, the place to be fixed by the Executive Committee.

ELECTIONS AND APPOINTMENTS.

American Society of Civil Engineers.—At the recent annual meeting the following officers were chosen for the year beginning Nov. 6: President, W. Milnor Roberts; Vice-Presidents, Albert Fink, James B. Francis; Secretary, John Bogart; Treasurer, J. J. R. Croes; directors, George S. Greene, Wm. H. Paine, C. Vandervoort Smith, Thomas S. Clarke, Theodore G. Ellis.

Boston & Albany.—Mr. E. Gallup has been appointed General Passenger Agent, with headquarters in Boston. This is a new office, Mr. Griggs remaining General Ticket Agent.

Chicago, Burlington & Quincy.—Mr. John D. Bassler is appointed Assistant Superintendent, with office at Galesburg, Ill. He has been on the road over 20 years.

Chicago, St. Louis & New Orleans.—Mr. W. H. Purdy, for many years assistant to Mr. S. J. Hayes, Superintendent of Machinery of the Illinois Central Railroad, has been appointed Superintendent of Machinery of the Chicago, St. Louis & New Orleans Railroad. His office will probably be at McComb City, Miss., but he will have charge of the machinery and rolling stock of the whole line.

Chicago, St. Paul & Minneapolis.—Mr. Frank B. Clarke, General Freight and Passenger Agent, will be known hereafter as Traffic Manager. His office will remain in St. Paul, Minn.

Mr. C. W. Porter is appointed Land Commissioner, in place of H. H. Weakley, resigned. Office at Hudson, Wis.

Detroit & Bay City.—Mr. Charles F. Barron has been appointed General Freight and Passenger Agent, with headquarters at Detroit, Mich.

Mr. D. A. Waterman, General Accountant, and Mr. J. E. Griffiths, Cashier of the Michigan Central, will continue to act in similar capacities for this road until further notice.

Detroit, Grand Haven & Milwaukee.—This company was organized at Detroit, Nov. 9, by the purchasers of the Detroit & Milwaukee, who chose the following directors: Samuel Barker, Sir Hugh E. C. Childers, Geo. E. Davies, Geo. Jerome, ward Martin, Francis Pavey, R. P. Toms, Thomas Wilde. The board elected officers as follows: President, Samuel Barker, Hamilton, Ont.; Secretary, James H. Muir, Detroit, Mich.; General Manager, F. Broughton, Hamilton, Ont.; Solicitor, George Jerome, Detroit, Mich.

Executive Committee of Western Railroads.—Mr. N. Guil-

ford, who acted as Commissioner for the Western pool last spring, has been appointed Secretary of the Executive Committee of Western Lines, in place of Wm. Duncan, resigned, to receive and consolidate reports from the commissioners at the separate pooling points, assist the Chairman of the Committee in matters connected with the formation and operation of a general east-bound pool, and act generally as a central officer from the Western pools. His experience with the spring experiment gives him special qualifications for such work.

Great Western, of Canada.—At the half-yearly meeting in London, England, Oct. 31, James Bald and Thomas Chilton, whose terms then expired, were unanimously reelected directors. Messrs. John Young, Thomas Adams and John James Mason were reelected auditors for the ensuing year.

Hannibal & S. Joseph.—At the annual meeting in Hannibal, Mo., Nov. 4, the following directors were chosen: S. B. Armour, Kansas City, Mo.; Wm. M. Bliss, E. A. Buck, M. P. Bush, H. H. Cook, Wm. Dowd, Julius Hallgarten, W. P. Leonard, Horace Porter, New York. The only new director is Mr. Buck, who succeeds H. M. Benedict.

Jeffersonville, Mt. Sterling & Columbus.—At the annual meeting in Mt. Sterling, O., Nov. 4, the following directors were chosen: Geo. Kious, Dr. Samuel McClintick, Wm. McCafferty, Mt. Sterling, O.; S. W. Brown, Paint, O.; Isaac Glaze, Dr. O. W. Marshall, Jeffersonville, O.; S. F. Rock, Washington Court House, O. The board elected George Kious President; Dr. Samuel McClintick, Vice-President; Dr. O. W. Marshall, Secretary; John G. Loofborrow, Treasurer; S. F. Rock, Chief Engineer.

Michigan Central.—Mr. Arthur W. Street is appointed Assistant General Freight Agent, in place of Charles F. Barron, resigned to accept a position on the Detroit & Bay City road.

Missouri Railroad Commission.—At the election last week Mr. Archibald M. Sevier was chosen a member of the board.

Missouri, Kansas & Texas.—Mr. L. T. Sheldon, for the past four years Superintendent of the Cherokee and Neosho divisions, has been promoted to be Paymaster, and is also Superintendent of Telegraph. His office is at Sedalia, Mo.

Nashville, Chattanooga & St. Louis.—Mr. Albert B. Wrenn has been appointed General Western and Northwestern Agent. Mr. J. F. Thompson succeeds Mr. Wrenn as General Southwestern Agent.

New Hampshire Railroad Commission.—At the election in New Hampshire last week Messrs. Granville P. Conn, of Concord, David E. Willard, of Oxford, and James L. French, of Moultonboro, were chosen Railroad Commissioners. They were the Republican candidates.

New York & Long Island Bridge Co.—At the annual meeting in New York, Nov. 7, the following directors were chosen: Archibald M. Bliss, John T. Conover, Pliny Freeman, Robert M. C. Graham, Gottlieb Gunther, H. C. Poppenhusen, Thomas Rainey, Charles H. Rogers, H. C. Schmidt, Wm. Steinway, Charles F. Trethar, Edward J. Woolsey.

Philadelphia, Germantown & Norristown.—At the annual meeting in Philadelphia, Nov. 4, the following managers were chosen: Coffin Colket, Edwin A. Benson, Winfield S. Wilson, Daniel Longaker, Lewis Elkin. The road is leased to the Philadelphia & Reading.

Savannah, Skidaway & Seaboard.—Mr. J. P. H. Garrett, late a conductor on the road, has been appointed Superintendent, in place of William Cleghorn, resigned.

Texas & Pacific.—At the adjourned annual meeting in Philadelphia, Nov. 5, the following directors were chosen: Thomas A. Scott, H. H. Houston, R. D. Barclay, Marshall O. Roberts, Henry G. Stebbins, W. C. Hall, T. L. Nesmith, Alfred Gaither, W. T. Walters, W. M. Harrison, B. M. Johnson, W. W. Kiefer, Wm. Thaw. The board reelected Thomas A. Scott, President; Frank S. Bond, John G. Brown, Vice-Presidents; C. E. Satterlee, Secretary; George D. Krumhaar, Treasurer.

Union Pacific.—Mr. Russell Sage, of New York, has been chosen a director, in place of G. M. Dodge, resigned. It is said that there are to be further changes in the board.

Whitfield & Jefferson.—The officers of this new New Hampshire company are: Aaron Ordway, President; S. N. Bell, Clerk; E. D. Harlow, Treasurer.

PERSONAL.

—The following dispatch was sent from Philadelphia, Nov. 9: "With regard to the reports of the serious illness of President Thomas A. Scott, of the Pennsylvania Railroad Company, who sailed hence on the steamer *Switzerland* on the 4th instant, it is stated upon the highest authority tonight that, while Mr. Scott was really suffering from an attack of paralysis, his mind was unimpaired, and his physicians are sanguine of his speedy recovery, providing that he remains abroad, or abstains from his laborious duties, during six months, as they have advised."

—In a private letter to a gentleman in this country, Baron M. M. von Weber, the eminent German railroad authority, mentions having read the various publications of Mr. Albert Fink, the present Commissioner of the Trunk Lines, and having met him for a short time in Germany last summer, and adds: "I consider Mr. Fink as perhaps the first of living railroad men, and he is in my opinion the *Stephenson of railroad administration*." Considering Weber's extraordinary ability and wide information concerning railroad affairs and policies and railroad men the world over, this is praise that a man has a right to be proud of. There is no man in Europe whose good opinion in such matters is better worth having.

—Mr. A. S. Matthews, for 40 years Superintendent of the old Stonington Railroad, now the New York, Providence & Boston, has resigned his position on account of failing health. He will, however, remain in the employ of the company as Chief Engineer, a new office on the road. Mr. Matthews is the oldest railroad superintendent in New England, and, we believe, in the United States.

—Mr. S. B. Kenrick, who recently resigned his position as Superintendent of the Green Bay & Minnesota road, is now residing at Clinton, Ia.

—The will of the late Gen. D. D. Colton, Financial Director of the Central Pacific, is very short and leaves all his large property to his wife, simply requesting her to make sufficient provision for their two daughters, and to see that proper care is taken of his mother and sister.

TRAFFIC AND EARNINGS.

East-Bound Passenger Rates.

There are many reports of cutting in Cincinnati and St. Louis passenger rates, and there is no doubt that there has been a good deal of it. The Wabash and the Atlantic &

Great Western are charged with beginning the reductions. The cuts reported are on rates from Cincinnati to New York, from \$18 to \$4, and in rates from St. Louis to New York, from \$24 to \$13.50. It is thought, however, that matters will soon be adjusted again, and according to previous experience rates from places further north are not likely to be affected. It is a trouble which often occurs at these places.

Coal Movement.

Coal tonnages are reported as follows for the ten months ending Nov. 2, the tonnage in each case being only that originating on the line to which it is credited:

Anthracite:	1878.	1877.	Inc. or Dec.	P. c.
Philadelphia & Reading	4,105,740	5,710,035	D. 1,604,295	28.1
Northern Central, Shamokin Div., and Summit Br. R. R.	634,194	606,539	I. 27,655	4.6
Wilkesbarre	26,070	25,987	I. 83	0.3
Pennsylvania Canal	305,173	296,617	I. 8,556	2.9
Central of N. J., Lehigh Div.	1,861,877	3,273,031	D. 1,411,154	18.1
Lehigh Valley	2,048,529	3,552,115	D. 1,503,586	25.4
Penn. & New York	26,047	36,143	D. 10,096	28.3
Del. Lacka. & Western	1,732,965	1,509,053	I. 223,912	14.8
Del. & Hudson Canal Co.	1,170,022	1,414,239	D. 244,217	21.6
Pennsylvania Coal Co.	728,310	836,966	D. 108,656	13.0
State Line & Sullivan	28,802	17,037	I. 11,765	69.2
Total anthracite	13,817,359	16,277,762	D. 2,460,403	15.1

Semi-bituminous:	1878.	1877.	Inc. or Dec.	P. c.
Cumberland, all lines	1,390,582	1,320,095	I. 69,487	5.3
Huntingdon & Br'd Top	125,583	115,208	I. 10,375	9.0
East Broad Top	51,200	43,608	I. 7,592	17.2
Tyrone & Clearfield	1,096,065	1,159,873	D. 63,808	5.5
Bellefonte & Snow Shoe	20,782	32,781	D. 11,999	36.6
Total semi-bitu's	2,684,212	2,672,225	I. 11,987	0.5

Bituminous:	1878.	1877.	Inc. or Dec.	P. c.
Barclay	255,566	268,236	D. 12,670	4.7
Allegheny Region Pa. R.R.	168,955	151,943	I. 17,012	11.2
Penn. and Westmoreland gas coal	548,831	578,427	D. 29,596	5.1
West Pennsylvania R. R.	151,875	152,091	D. 216	0.1
Southwest Penn. R. R.	21,265	32,470	D. 11,205	34.5
Pittsburgh Region, Pa. R. R.	355,094	314,472	I. 40,622	12.9
Total bituminous	1,501,586	1,497,639	I. 3,947	0.3

Coke:
Penn. and Westmoreland 62,886
West Pennsylvania R. R. 71,127
Southwest Penn. R. R. 640,368
Pittsburgh Region, Pa. R. R. 84,850
Total coke 869,240

Negotiations for the continuance of the Anthracite Combination after Dec. 31 appear to be at a standstill, and there is said to be little prospect of an agreement, though it is possible that some new combination may be made after Jan. 1. Apparently some of the companies think they can do better with unlimited competition than under a combination.

Actual tonnage passing over the Huntingdon & Broad Top Railroad for the ten months ending Nov. 2 was as follows:

	1878.	1877.	Inc. or Dec.	P. c.
Broad Top	125,583	115,208	I. 10,375	9.0
Cumberland	134,700	144,981	D. 10,281	7.1
Total	260,283	260,189	I. 94	0.04

The tonnage passing over the Pennsylvania & New York road for the eleven months of its fiscal year from Dec. 1 to Nov. 2 was:

	1878.	1877.	Decrease.	P. c.
Anthracite	708,352	782,316	73,964	9.5
Bituminous	287,566	300,572	13,006	7.1
Total	995,918	1,082,888	86,970	8.8

The anthracite coal tonnage of the Belvidere Division, Pennsylvania Railroad, for the ten months ending Nov. 2 was:

	1878.	1877.	Inc. or Dec.	P. c.
Coal Port for shipment	10,976	38,847	D. 27,871	67.7
South Amboy for shipment	359,202	471,737	D. 112,535	24.5
Local distribution on N. J. lines	154,979	161,723	D. 6,744	4.2
Company's use on N. J. lines	70,384	61,548	I. 8,836	14.4
Total	595,541	732,855	D. 137,314	18.7

Of the total this year 474,716 tons were from the Lehigh, and 117,825 tons from the Wyoming Region.

The coal tonnage of the New York State canals from the opening of navigation up to Oct. 28 was:

	1878.	1877.	Decrease.	P. c.
Anthracite	519,861	857,276	337,415	39.4
Bituminous	156,047	236,102	79,515	33.7
Total	675,908	1,093,378	417,470	38.1

This great decrease is in face of a period of navigation about three weeks longer this year than last.

Coal receipts at Chicago for the ten months ending Nov. 2 were 1,465,238 tons; shipments, 232,251 tons.

The coal tonnage of the Pennsylvania Railroad for the ten months ending Oct. 31 was:

	1878.	1877.	Decrease.	P. c.
Anthracite	605,073	1,339,871	734,798	55.3
Semi-bituminous	1,290,569	1,387,872	97,303	7.0
Total	1,895,642	2,727,743	832,101	29.8

Coal shipments from Pictou, Nova Scotia, for the ten months ending Nov. 2 were 124,089 tons.

East-Bound Rates.

At the Windsor House meeting, on the 9th inst., it was agreed to advance east-bound rates on grain and fourth-class freight 5 cents per 100 lbs., to take effect Monday, Nov. 25, thus giving the notice agreed upon at the Chicago meeting. This will make the rates from Chicago to New York (on which all others are based) 35 cents for grain and 40 cents for fourth-class freight, including hog products, which form a very large part of the total shipments now. These are unusually low winter rates, but it seems to be the general opinion that no more can be had now. Last year 40 cents was the rate on grain after the middle of October, and the 35-cent rate now proposed for the winter went into effect the 1st of September and appears to have been well maintained.

At the same meeting it was agreed to raise the rate on dressed hogs from 70 to 75 cents per 100 lbs. on the same day, and at the same time to make a corresponding advance in the rate on live hogs.

Railroad Earnings.

The following are reports made to the Massachusetts Railroad Commission for the year ending Sept. 30, 1878:

	Earnings.	Expenses.	Net earn.	Earn per mile.	P. c.
Boston & Maine	\$2,163,550	\$1,446,568	\$717,091	\$10,503	66.97
Boston, Revere	121,265	83,941	37,324	13,780	69.37
Bench & Lynn	2,452,935	1,581,125	871,810	8,098	64.54
Eastern	81,979	60,908	21,071	10,247	81.39
Hanover Branch	2,174,398	1,374,337	800,061	7,738	63.34
Old Colony					

Earnings for various periods are reported as follows:

Ten months ending Oct. 31:	1878.	1877.	Inc. or Dec.	P. c.
Atchison, Topeka & Santa Fe	\$3,170,298	\$2,097,249	I. \$1,073,049	51.2
Bur., Cedar Rap. & Northern	1,273,497	981,342	I. 292,155	29.8
Central Pacific	14,771,363	13,840,320	I. 931,043	6.7
Chicago & Alton	3,925,142	3,755,028	I. 169,214	4.5
Chicago, Mil. & St. Paul	6,926,043	6,552,946	I. 373,097	5.7
Chi. & Northwest'n	11,601,662	10,191,831	I. 1,409,831	13.8
Denver & Rio Gr'de.	915,644	920,156	D. 4,512	0.5
Grand Trunk	7,458,695	7,812,702	D. 354,007	4.6
Ill. Central, Illinois lines	3,777,155	3,680,094	I. 97,061	2.6
Ill. Central, Iowa lines	4,561,834	4,340,910	I. 220,924	5.1
Ind., Bloom. & Western	1,225,390	1,233,500	D. 8,110	0.7
Kansas Pacific	1,065,633	1,033,730	I. 31,903	3.1
Mo., Kansas & Texas	3,043,809	2,672,254	I. 371,555	13.9
St. L. Alton & T. H.	2,450,652	2,444,115	I. 6,537	0.3
Belleville Line	402,774	429,405	D. 26,631	6.2
St. Louis, Iron Mt. & Southern	3,503,932	3,516,043	D. 12,111	0.3
St. Louis, Kan. City & No.	2,726,505	2,578,314	I. 148,191	5.8
St. Louis & South-eastern	973,087	912,178	I. 60,909	6.7
Toledo, Peoria & Warsaw	1,065,770	925,894	I. 139,876	15.1
Union Pacific	10,322,479	10,259,074	I. 63,405	0.6
Wabash	4,206,182	3,814,906	I. 391,276	10.3
Nine months ending Sept. 30:				
At. Miss. & Ohio	\$1,198,143	\$1,258,906	D. \$60,763	4.8
Net earnings	352,747	352,186	D. 561	0.2
Bur., Cedar Rap. & Northern	1,131,878	809,809	I. 322,069	39.8
Net earnings	310,880	240,307	I. 70,573	31.9
Chicago & Alton	3,444,273	3,310,331	I. 133,942	4.0
Net earnings	1,460,974	1,424,971	I. 36,003	2.5
Chicago, Bur. & Quincy	10,378,548	8,994,907	I. 1,383,641	15.4
Net earnings	4,700,647	4,056,706	I. 643,941	15.9
Dakota Southern	155,519	134,582	I. 20,937	15.6
Net earnings	68,806			
Galveston, Har. & San Antonio	\$861,141	\$688,284	I. \$172,857	25.1
Int. & Gt. Northern	948,877	907,889	I. 40,988	4.9
Net earnings	268,007	196,609	I. 71,398	36.3
Kansas Pacific	2,595,295	2,276,893	I. 318,402	14.0
Net earnings	1,022,071	911,975	I. 110,096	12.1
Memphis, Paducah & Northern	139,213	134,415	I. 4,798	3.6
Net earnings	25,472	41,722	D. 16,250	39.0
Nash., Chatta. & St. Louis	1,188,031	1,255,061	D. 67,030	5.5
Net earnings	388,851	403,015	D. 14,164	3.6
St. Louis, Iron Mt. & So.	2,926,732	3,005,231	D. 78,499	2.6
Net earnings	1,153,972	1,358,575	D. 204,603	15.1
St. Paul & Sioux City	430,316	349,226	I. 81,090	23.2
Net earnings	149,947	96,417	I. 53,530	55.5
Sioux City & St. Paul	266,148	200,826	I. 65,322	32.5
Net earnings	66,493	37,039	I. 29,454	79.6
Southern Minnesota	490,875	425,024	I. 65,851	15.5
Net earnings	249,937	153,190	I. 96,747	61.2
Wabash	3,633,203	3,341,909	I. 291,294	8.7
Net earnings	1,020,124	772,685	I. 247,439	32.0

Eight months ending Aug. 31:	1878.	1877.	Inc. or Dec.	P. c.
Atchison, Topeka & Santa Fe	\$2,304,298	\$1,479,385	I. \$824,913	55.8
Net earnings	1,112,258	664,056	I. 448,202	67.5
Bur. & Mo. River in Nebraska	981,089	600,822	I. 374,267	61.6
Net earnings	570,839	331,392	I. 244,447	75.0
Grand Rapids & Indiana	778,322	695,342	I. 82,980	11.9
Net earnings	119,706	217,429	D. 97,723	44.9

Six months ending Sept. 30:	1878.	1877.	Inc. or Dec.	P. c.
Chicago, R. I. & Pacific	\$4,478,085	\$3,873,357	I. \$604,728	15.6
Net earnings	2,144,958	1,671,309	I. 473,649	28.3

Three months ending Oct. 31:	1878.	1877.	Inc. or Dec.	P. c.
Chi. & Eastern Ill.	\$238,984	\$212,832	I. \$26,152	12.3
Month of August:				
Bur. & Mo. River in Nebraska	\$166,320	\$123,147	I. \$43,173	35.1
Grand Rapids & Indiana	109,386	96,081	I. 12,705	13.1

Month of September:	1878.	1877.	Inc. or Dec.	P. c.
At. Miss. & Ohio	\$153,880	\$185,208	D. \$31,328	16.9
Chicago, Bur. & Quincy	1,363,123	1,363,310	D. 186	0.01
Dakota Southern	17,431	25,559	D. 8,128	31.8
Galveston, Har. & San Antonio	132,148	99,480	I. 32,668	32.8
Southern Minnesota	34,538	123,351	D. 88,813	72.0

Month of October:	1878.	1877.	Inc. or Dec.	P. c.
Atchison, Topeka & Santa Fe	\$445,000	\$342,822	I. \$102,178	29.9
Bur., Cedar Rapids & Northern	141,619	171,533	D. 29,914	17.4
Central Pacific	1,834,600	1,806,382	I. 28,218	1.5
Chicago & Alton	480,869	445,597	I. 35,272	7.9
Chicago & Eastern Illinois	82,606	82,498	I. 108	0.1
Chi., Mil. & St. Paul	1,831,134	1,831,134	D. 0	0.0
Chi. & Northwest'n	1,508,838	1,508,776	D. 62	0.0
Denver & Rio Gr'de.	122,663	76,434	I. 46,229	60.8
Ill. Central, Illinois lines	490,130	612,185	D. 122,055	19.9
Ill. Central, Iowa lines	142,106	204,260	D. 62,154	30.4
Ind., Bloom. & Western	113,735	119,063	D. 5,328	4.5
Kansas Pacific	448,514	385,361	I. 63,153	13.4
Mo., Kan. & Texas	949,896	929,531	I. 20,365	2.2
St. L. Alton & T. H.	55,750	62,259	D. 6,509	10.4
Belleville Line	577,200	510,812	I. 66,388	13.0
St. Louis, Iron Mt. & So.	347,172	347,940	D. 768	0.2
St. Louis, Kan. City & No.	121,089	114,414	I. 6,675	5.8
St. Louis & South-eastern	28,983	13,416	I. 15,567	116.2
Scioto Valley	104,500	115,167	D. 10,667	9.3
Union Pacific	1,209,879	1,185,405	I. 24,474	2.1
Wabash	517,013	472,986	I. 44,027	9.4

First week in November:	1878.	1877.	Inc. or Dec.	P. c.
Chi., Mil. & St. Paul	\$180,000	\$241,277	D. \$61,277	25.4
Week ending Nov. 1:				
Gt. Western, of Can.	\$88,365	\$105,885	D. \$17,520	16.5
Week ending Nov. 2:				
Grand Trunk	\$191,177	\$217,354	D. \$26,177	11.0

Chicago & Northwestern earnings include the proprietary roads in October.

Cotton Movement.

For the week ending Nov. 8 and for the ten weeks from September to that date the receipts of cotton at Atlantic ports have been, in bales:

Id., Bloom. & West- ern.....	113,735	119,063	D.	\$5,328	4.5
Kansas Pacific.....	448,514	395,361	I.	53,153	13.4
Mo., Kan. & Texas ..	349,896	329,531	I.	20,365	6.2
St. L., Alton & T. H., Belleville Line.....	55,750	62,250	D.	6,500	10.4

average on the same cereals by canal, from Buffalo to New York, for the month of October in the years named:

Year.	LAKE.		CANAL.	
	Wheat.	Corn.	Wheat.	Corn.
1869.....	10.3	9.8	21.7	10.0
1870.....	8.5	7.6	11.9	11.5
1871.....	10.1	9.7	15.9	14.1
1872.....	10.5	10.5	14.2	12.6
1873.....	7.8	6.8	12.7	11.3
1874.....	4.1	3.8	9.6	8.6
1875.....	3.7	3.4	8.2	7.4
1876.....	4.4	4.0	8.1	7.5
1877.....	4.9	4.4	10.6	9.2
1878.....	3.6	3.3	8.0	7.0

"The month opened with the rate on wheat at Chicago at 4 cents. During the first nine days the demand for freight room was active and the market ruled firm and a quarter higher. But the failure of the Glasgow Bank, and of numerous other large concerns that were compelled to wind up in consequence, produced such a panic on the other side that foreign shipments were seriously interrupted for weeks. The situation was so critical that American exporters did not dare to send forward their produce for fear their consignees would be bankrupt before their drafts could be honored. With the foreign shipments impeded and an immense forward movement from the interior to the seaboard it was only a matter of a few days before the Eastern markets were glutted and receivers had to notify their Western agents to discontinue shipment.

"This accounts for the somewhat unsatisfactory condition of transportation affairs in October. But an improvement has already taken place, the rate on wheat being quoted at 4½ cents at Chicago yesterday. Indications at present point to still better prices."

RAILROAD LAW.

Employees—Violation of Rules.

In *Wolsey* against the Lake Shore & Michigan Southern Company, the Ohio Supreme Court lately held as follows:

1. If an employe enters into or remains in the service of a railroad company, with a knowledge of its rules and regulations, he must be held as undertaking to acquiesce therein, and if he is afterward injured, by reason of a violation of such rules and regulations, he cannot claim that their reasonableness is a question to be decided by a jury, in an action by him to recover damages for the injury thus occasioned.

2. If the employe has suffered an injury, brought about by a violation of the plain instructions of his principal, he cannot hold his principal liable therefor.

Round-Trip Tickets.

George M. Pierce, of Ashtabula County, has sued the Ashtabula, Youngstown & Pittsburgh Railroad Company for ejecting him from one of its passenger trains in January, 1878. The pleadings distinctly raise the issue as to a passenger's right to stop off on a ticket sold at reduced rates in consideration of its being used for "a continuous trip each way only." The defendant alleges that it sold a round-trip ticket from Orwell to Eagleville and return, good for "a continuous trip each way only," that a passenger rode on its train from Orwell to Rock Creek, and tendered for the ride a round-trip ticket, as above stated; that the conductor cancelled said ticket to Eagleville; that at Rock Creek the passenger who had tendered the round-trip ticket left the train; that plaintiff got on the train at Rock Creek bound for Eagleville and tendered for his fare the canceled round-trip ticket for which defendant's road had carried the original purchaser; that defendant's conductor refused to accept the ticket for fare from the plaintiff and explained to him that the conditions printed on the back of the ticket were that it was good for a continuous trip only. The plaintiff refused to pay his fare and was ejected from defendant's cars.

The case was transferred to the United States Circuit Court at Cleveland by the Pennsylvania Company, and was submitted to the Hon. Martin Welker, District Judge, upon the plaintiff's demurrer to the sufficiency of the defendant's answer. Judge Welker disallowed the demurrer, thereby holding that the facts as stated constituted a good defense to the plaintiff's petition, and that the defendant was not bound to carry the plaintiff for the canceled ticket, which was good for a continuous trip only, as plainly set forth in the printed conditions, which were in the nature of a contract. Such tickets were sold by railroads at reduced rates, on condition that they were to be used for a continuous trip only. The decision is of interest to travelers.—*Cleveland Herald*, Nov. 12.

OLD AND NEW ROADS.

Atchison, Topeka & Santa Fe.—The track on the New Mexico Extension is now laid to a point 12 miles south of Trinidad, Col. Work is progressing on the temporary track over the Raton Mountains, which is to be used until the tunnel can be completed.

Work is also being actively pushed on the extension from Canon City to Leadville.

Atlantic & Great Western.—The reports as to the lease of this road to the New York, Lake Erie & Western continue current. It now said that the reconstruction trustees who have been visiting this country, carry back with them to England a definite proposition to be laid before the bondholders.

Boston, Clinton, Fitchburg & New Bedford.—The negotiations for the lease of this road to the Old Colony have, it is stated, finally failed, the committees of conference being unable to agree upon any basis for a lease.

Burlington & Missouri River, in Nebraska.—The trustees under the mortgage gave notice that they will receive until Nov. 30, at their office, No. 49 Sears Building, Boston, proposals for the sale to them of bonds issued under the mortgage to the amount of \$50,000, or any part of that amount.

Carolina Central.—The through line from Norfolk to Charlotte over this road, the Raleigh & Augusta Air Line and the Raleigh & Gaston has been temporarily broken up by a difference as to rates and the division of receipts. Negotiations are in progress, however, for a friendly settlement, and it is thought that the matter will soon be adjusted.

Chicago & Iowa.—The litigation over the sale of this road has been stopped by a compromise, the terms of which, as filed in the United States Circuit Court in Chicago, are as follows: It is agreed that the suit of the Chicago & Iowa Railroad Company against Brooks and Dennison, trustees, in which an injunction has been ordered, shall be dismissed at complainant's costs, and the injunction dissolved without damages, which are waived; the appeal in the suit to the United States Supreme Court from the former decree of sale is also to be dismissed, and no sale is to be had under said decree, and the cause is to be remanded. No sale is to be had under the former decree until after Jan. 1, 1880, provided the following conditions are complied with:

1. The Receiver is to pay \$13,000 for all law costs and advertising expenses up to the present time.

2. In the meantime the Receiver shall be required to put

and maintain the road and equipment in first-class condition, so as at all times to be safe for the passage of all trains without unnecessary injury or damage.

3. On Jan. 1, 1879, the Receiver shall apply all money in his hands or in the custody of the Court, not required for the maintenance and operation of the road, to the payment of coupon interest on the first mortgage in full, and shall pay the balance to the second-mortgage bondholders' committee, to be distributed *pro rata* to apply on past due coupon interest.

4. On July 1 next all money in the Receiver's hands shall be similarly applied.

5. If, on the last day of July, 1880, the net earnings of the road shall not be sufficient to pay all arrearages of interest at coupon rates, but allowing no interest on overdue coupons, to settle all freight and ticket balances, and pay off all liens for taxes and other claims, which may be a charge against the mortgaged property or the Receiver, except the principal of said mortgages, then the mortgaged property is to be sold without redemption, and no order or stay of proceedings shall be applied for or had to delay such sale; the Receiver in the meantime to pay no indebtedness not a charge on the property, and the decree of sale to be reformed to accord with such stipulation. On the other hand, if the moneys received shall be sufficient as above, the decree of sale is to be set aside, and the bill of foreclosure to be dismissed.

6. This stipulation shall in no way prejudice any claim which the Chicago & Iowa Company may have against the Chicago, Burlington & Quincy Railroad Company, or its right to bring suit thereon, if it has any such claim.

7. The Court may make such further orders from time to time as shall be necessary to carry out the stipulation.

Chicago, Rock Island & Pacific.—This company makes the following statement for the six months of its fiscal year from April 1 to Sept. 30:

	1878.	1877.	Inc. or Dec.	P. c.
Gross earnings.....	\$4,478,095	\$3,873,357	I. \$604,738	15.6
Working expenses.....	2,333,137	2,202,048	I. 131,089	6.0
Net earnings.....	\$2,144,958	\$1,671,309	I. \$473,649	28.3
Interest, rents, etc.....	537,500	583,662	D. 46,162	7.9
May and August Dividends.....	944,002	839,193	I. 104,809	12.5
Total charges.....	1,481,592	1,422,855	I. \$58,737	4.1
Surplus.....	\$663,366	\$248,454	I. \$414,912	167.0

The working expenses were 52.10 per cent. of gross earnings in 1878, against 56.85 per cent. in 1877.

Chicago, Pekin & Southwestern.—The United States Circuit Court has refused to grant a motion for an order to remand the foreclosure suit against this road to the Grundy County (Ill.) Circuit Court.

Cumberland & Ohio, Southern Division.—Under the lease of this road to the Louisville & Nashville, the latter company has now laid track on the road from Lebanon, Ky., southward five miles. The grading to Campbellsville, 18 miles from Lebanon, is nearly all done, except in a few cuts, and track will probably be laid by spring. The road is to be finished to Greensburg, 30 miles from Lebanon, next season.

Detroit & Bay City.—Track-laying is in progress on the branch from Vassar, Mich., to East Saginaw, but the work has been much delayed by the failure of the rails to arrive as fast as wanted.

Detroit & Milwaukee.—The organization of the new company, in accordance with the plan of reorganization, was completed at a meeting held in Detroit, Nov. 9. The new corporation will be known as the Detroit, Grand Haven & Milwaukee Railway Company. The new securities will be at once prepared and issued as soon as possible. Bondholders who join in the reorganization will receive new bonds to the amount of 70 per cent. of the face of the old ones. The first-mortgage bondholders who did not join in the purchase of the road will receive from the proceeds of the sale about 37½ cents on the dollar; the second-mortgage bondholders about 7 cents.

Detroit, Hillsdale & Southwestern.—A preliminary survey has been made of the proposed extension from Ypsilanti, Mich., northeast to Pontiac. The distance is 35 miles, and the engineers report a very good line.

Eastern Extension.—The contractors on this road have laid the rails from the junction with the Pictou Branch at New Glasgow, N. S., eastward 10 miles to Sutherland River. A construction train is on the road and some freight cars have been received.

East River Bridge.—The New York Supreme Court has refused to grant the peremptory *mandamus* asked for by the trustees to compel the city of New York to pay over an additional \$1,000,000 to them for the construction of the bridge. The Court holds that the city authorities have a right to withhold the money if they believe that the bridge will not be completed within the limit of \$8,000,000 prescribed by law.

Galena & Southern Wisconsin.—In the United States Circuit Court in Chicago, Nov. 9, the Farmers' Loan & Trust Company, of New York, filed a bill asking for an injunction against the sale of this road and for the appointment of a receiver. The bill alleges that the road, on which the Trust Company has a prior lien by virtue of a trust deed executed at the time the bonds were issued for its construction, has been covered by several other mortgages in various forms in violation of law and with intent to defraud; and that one of the mortgagees is now about to sell the road to satisfy his claim. The road is of 3-ft. gauge and extends from Galena, Ill., to McCormack's, Wis., 40 miles; it has been in trouble for some time.

Illinois Central.—The Land Department reports that during the month of October 994.12 acres of land were sold for \$7,666 72. The cash collected on land contracts was \$7,173.70.

The traffic on the lines in Illinois was \$490,130, against \$612,185.47 in October, 1877, a decrease of \$122,055.47, or 20 per cent. There was a decrease on the Iowa Division of \$62,163.66, making the total decrease in both states for the month \$184,209.13.

James River & Kanawha Canal.—A suit has been begun in the Virginia Circuit Court at Richmond by holders of first-mortgage bonds of this company to foreclose the mortgage.

Jeffersonville, Mt. Sterling & Columbus.—At the recent annual meeting it was resolved to have the line surveyed at once, and to let contracts for grading the 15 miles from Allentown, O., to Mt. Sterling as soon as it can be located. When this is done the line from Mt. Sterling to Columbus will be taken up.

Kentucky Central.—It is said that arrangements are being made to begin work on the extension of this road from Lexington, Ky., south by west to Richmond, about 30 miles. Surveys have been made for a line through Richmond to Cumberland Gap.

Lockport & Buffalo.—This company having completed, after long legal delays, the necessary proceedings to enable it to cross the New York Central track at Tonawanda, attempted to lay the crossing last week. This was forcibly resisted by the Central, a locomotive being placed at the crossing and stones and iron posts placed on each side. The officers of the Lockport & Buffalo road persisted, however, and the crossing was finally laid, after a temporary injunction had been procured and the Sheriff of the county had sent a large force to preserve order.

Macon & Brunswick.—In his recent annual message the Governor of Georgia recommends that the Legislature make provision for an early sale or long lease of this road, under such restrictions as will secure the state against loss.

The commissioners in charge of the road report its earnings as follows for the 22 months from Dec. 1, 1876, to Sept. 30, 1878:

Gross earnings (\$3.208 per mile).....	\$631,911.70
Expenses (87.71 per cent.).....	554,352.47
Net earnings (\$3.94 per mile).....	\$77,559.22

Of the net earnings \$65,000 have been paid into the state treasury. Of the expenses \$37,035.74 were paid on matters not fairly chargeable to current expenses. This, added to the net earnings, would make the sum of \$114,594.06 over the actual cost of running the road. The road is in good condition and the limited motive power in fair order.

Maine Central.—This company is said to be surveying a line from Bangor, Me., northward into Aroostook County. That county comprises the whole northern part of the state, and a line from Bangor to Fort Fairfield or Caribou, which are near the northern limit of settlement, would be 150 miles long, through country in part fertile, but very thinly inhabited. The building of nearly 60 miles of the proposed line could be saved by using the European & North American road from Bangor to Mattawamkeag. It is said that the Eastern and the Boston & Maine are willing to aid in building the proposed extension, but this is not at all probable.

Marietta, Pittsburgh & Cleveland.—There has been recently a considerable development of oil production on the southern part of this road, which seems likely to materially increase its traffic. There are producing wells now for ten miles along the road, the centre of the district being about 20 miles above Marietta. The oil is the same as the West Virginia oil, a considerable proportion of it being heavy oil used for lubrication and worth much more than illuminating oil. Should there be many wells drilled the business in machinery, supplies and passengers would probably be many times as great as it is now, and would probably yield more than the oil transportation, which pipe lines might divert.

Memphis Branch.—The final disposition of this road is thus noted by the Governor of Georgia in his annual message: "In pursuance of an executive order issued June 6, 1877, the property of the Memphis Branch Railroad Company, except its franchise, road-bed and the bridge across the Oostanaula River, was exposed for sale in the city of Rome on the first Tuesday in August next thereafter, and was bid off by the Marietta & North Georgia Railroad Company for the sum of \$9,000. Said last-named company being unable to pay the amount of said bid in cash, I consented, in behalf of the state, that payment of said sum should be deferred until the first day of January, 1881—the company, in the meantime, paying interest thereon, annually, at the rate of 7 per cent. per annum. Said sum of \$9,000 will be retained by the state from the proceeds of the hire of convicts for the year 1880, which proceeds have been annually loaned to said company by an act of the General Assembly, approved Feb. 24, 1877."

Michigan Central.—This company has recently issued a circular to its agents, connections and to shippers, requiring cars to be fully loaded, which illustrates the great increase in car-loads made within the past few years. The circular requires car-loads of flour to contain from 125 to 140 barrels—25,000 to 28,000 lbs. Of grain, lumber, bulk freight generally, and all other freight when practicable, 27,000 to 28,000 lbs. must be put in a car. Of green apples (a very important item of freight on this road at this time of year), 160 to 180 barrels go to a car.

Missouri, Kansas & Texas.—In the suit recently begun in the New York Supreme Court by Levi Parsons to compel his recognition as a director of the company and to enjoin the present board of directors from acting, on the ground that they were not legally elected, the company filed a demurrer upon the ground that the Court had no jurisdiction in the case. The Court has now sustained the demurrer, dismissing the suit.

Nashua & Lowell.—The Boston *Advertiser* of Nov. 8 says: "In the suit in equity in the Circuit Court of the United States for the district of New Hampshire, of certain of the stockholders of the Nashua & Lowell Railroad against a portion of the board of directors, an answer has been filed by the defendants denying that, as directors, they have done or contemplated doing anything other than to recommend to the stockholders the approval and acceptance of a proposition for a lease and adjustment, upon the requisite legislative authority being obtained."

"The parties, with a desire that a hearing be had as speedily as possible, will begin to take testimony before William H. Hackett, the examiner of the court, on Monday of next week, and the taking and printing of the evidence upon either side will be pushed forward with all proper speed, to the end that the testimony may be completed and a term assigned for hearing as soon as may be. In the meantime, the restraining order now in force is to be continued till the disposition of the case upon the merits, subject to being modified upon application in the usual mode provided in such cases."

New Jersey Southern.—Holders of the original first-mortgage bonds of this company are invited to send their names, addresses and numbers of their bonds to A. M. Kidder & Co., No. 2 Wall street, New York, with a view of calling a meeting to compare views and take action to protect their rights.

New York, Lake Erie & Western.—Work is now well advanced on the new ferry slips at Chambers street, New York, immediately below the old ones. The piling is all down and most of the dock work done, and work has begun on the buildings for the ticket offices, waiting rooms, etc. As soon as these are finished the old ferry houses and slips will be removed and in their place a large freight pier will be built. The new station in New York is expected to be a great improvement upon the old and will provide much needed additional room.

An association known as the "Railroad Car Trust of New York" has been formed with a capital of \$3,000,000, and has entered into a contract to build 2,500 freight cars for the use of this road. The cars are to be leased to the company for five years, payments to be made quarterly, and at the expiration of that time, if all the payments have been made, they will become the property of the New York, Lake Erie & Western Company. The first quarterly payment will be \$74,216.25, and the amount will gradually di-

minish until the last quarter, when \$55,937.06 will be paid, making a total of \$1,301,533.10. The railroad company is to keep the cars in repair, pay the taxes on them and pay \$1,000 per year to the trustees as compensation for their services. The arrangement is similar to the various car trusts, under which a large number of cars have been built for the Pennsylvania and its leased lines at different times.

Northern Pacific.—This company invites proposals for grading, bridging and completing, ready for the track superstructure, that portion of its line extending from the west bank of the Missouri River, opposite the present terminus of its railroad at Bismarck, to the Yellowstone River, at or near the mouth of Glendive Creek; being a distance of about 200 miles. Separate bids to be made on sections of 25 miles each. The first, or easterly section, to be completed by July 15, 1879; the second section, by Aug. 1, 1879; the third section by Sept. 1, 1879; the fourth section, by Oct. 1, 1879; and the other sections before Jan. 1, 1880. Bids for each section may be either in gross or by measurement. Proposals are also invited for ties, of same size, quality and number per mile as those now being used by this company for renewals of its track superstructure in Minnesota and Dakota; to be delivered for each section on or before the completion of the grading thereon. Maps and profiles of the line may be seen and information obtained at the office of the company, No. 23 Fifth avenue, New York city, where sealed proposals will be received up to and including the 17th day of December, 1878.

North & South, of Georgia.—The last sale of this road by the state is thus referred to in the recent annual message of the Governor of Georgia: "Under the discretion vested in the Governor by the act granting aid to said companies, and in pursuance of an executive order of date July 26, 1877, the North & South Railroad was sold in the city of Columbus on the first Tuesday in September next thereafter, for the sum of \$40,500. The purchaser at said sale failed to pay the amount of his bid; and having received an offer from Louis F. Garrard, and others of said city, to take said road and other property for the sum so bid at said sale, if time were allowed for the payment, I deemed it for the best interest of the state to accept the same.

"Accordingly a deed has been executed by the governor on behalf of the state, conveying to the said Louis F. Garrard, and his associates, all the property and franchises of said North & South Railroad Company. In consideration of said conveyance the purchasers agree to pay to the state, on the first day of January, 1884, the said sum of \$40,500; and also to pay to the Treasurer of Georgia, semi-annually, in advance, interest on said sum at the rate of 7 per cent. per annum until said principal is paid. They further agree to expend, within twelve months from the date of said conveyance, the sum of \$20,000 upon the extension and equipment of said road.

"Under the terms of said deed the state holds a prior lien upon the property conveyed, and also upon all the property that may be added thereto, and expressly reserves the right to seize and resume possession thereof upon the failure of said purchasers to pay the principal, or any part of said interest, within 30 days after the same may become due.

"In accordance with said agreement, the sum of \$2,835 interest on the amount of said purchase up to Jan. 1, 1879, has been paid into the state treasury."

Oil Transportation.—In the *quo warranto* suit against the United Pipe Lines, the Court of Common Pleas at Franklin, Pa., has given its decision, asserting its own jurisdiction in the case. The demurrer filed by the company is set aside and it is ordered to plead or make answer to the suggestion filed by the state.

As to the suits begun by the Attorney-General in the Supreme Court against the Pennsylvania and other companies, the *Pittsburgh Telegraph* of Nov. 11 says:

"When the Supreme Court met this morning a great deal of surprise was occasioned by the unexpected action which was taken by the counsel in the discrimination cases. Mr. George Shiras, Jr., said that he had made an arrangement with Messrs. Hampton and Dalzell in regard to these cases. This arrangement had been made to relieve the Court of a great deal of arduous work. Mr. Hampton, for the Pennsylvania Railroad Company, had agreed that the railroad company should file its answer to the application for a preliminary injunction within the present term of the court. The complainants agree to withdraw their motion for a preliminary injunction, and a master would be appointed to take testimony in order to have the case ready for the next session of the court at Philadelphia. The complainants, therefore, wait until there shall be a decision upon the master's report before they ask for an injunction.

"Mr. Shiras said that the same arrangement had been made between himself and Mr. D. T. Watson, counsel for the United Pipe Lines, in regard to their portion of the suit.

"Judge Agnew asked what would be done with the other suit against the other railroads.

"Mr. Shiras said that, as counsel for the complainants, he was willing to give those companies the same opportunities that were given to the Pennsylvania Company and the United Pipe Lines.

"The argument, which had been set for Thursday next, will, of course, not be made now, and the whole matter goes over to an indefinite period—judging from the present outlook."

Omaha & Northwestern.—The Union Trust Company, Trustee, having bought this road at foreclosure sale, requests bondholders to meet at its office in New York, Nov. 22, at 3:30 p. m., to decide what they will do with the property bought for their account.

Paris & Danville.—It is said that parties anxious to prevent this road from passing into the hands of the Wabash Company will resist the confirmation of the recent sale, and will try to have a resale of the road ordered.

Pennsylvania.—A Philadelphia dispatch of Nov. 12 says: "Notice has been given by the managers of the Pennsylvania Railroad that the trust created by the company for the purchase of certain securities has been organized. Offers will be received for the sale of the bonds and shares of other companies, the principal, interest or dividend upon which is guaranteed by the Pennsylvania Railroad Company. Wistar Morris is Chairman of the managers of the trust, and offers are to be made him at the company's office."

Philadelphia & Atlantic City.—On the application of John H. Burrell, Jr., trustee for the unpaid employees of this road, the Chancellor of New Jersey has ordered that the Receiver pay all wages—labor claims due to employees in the service of the company July 13 last—whether such labor claims are held by the employees themselves or the store-keeper and other assignees of them; one-half on the 1st day of December and one-half on the 1st day of January next. The claims of those who were discharged before July 13, the date of insolvency, will not be paid.

Pittsburgh & Lake Erie.—This road is so nearly ready for business that a meeting was held last week at Pittsburgh between its managers and the representatives of the Lake Shore and the Atlantic & Great Western roads for the pur-

pose of fixing rates and making arrangements for through business from Pittsburgh by this line. The new road not only completes a new and shorter line from Pittsburgh to Cleveland, but it can also be very well used for east-bound freight from Pittsburgh to New York and New England.

Pittsburgh Southern.—Track on this road is now laid to Washington, Pa., six miles from the late terminus at Finleyville, 18 miles from Castle Shannon and 25 miles from the Pittsburgh terminus. Coal trains have begun to run to Washington, but the road is not yet open for passenger business.

Saginaw Valley & St. Louis.—The contract for the extension from St. Louis, Mich., west to Alma, has been let to R. M. Steel, of St. Johns, Mich. It is intended to have the grading done by the end of the year.

St. Paul & Pacific.—The track on the St. Vincent Extension has finally reached the Manitoba line at St. Vincent or Emerson, which is 154 miles northward from the Northern Pacific crossing at Glyndon, 200 miles from Breckenridge, and 417 miles from St. Paul. The road is not yet ready for passenger trains, but will be in condition in a very short time, and in a few weeks the connecting branch of the Canadian Pacific will be completed, so that trains can run through from St. Paul to Winnipeg.

Selma, Marion & Memphis.—The Alabama Court of Chancery has confirmed the foreclosure sale of this road and ordered the deed to be executed to the bondholders who bought it.

Southern Minnesota Extension.—The grading of this road is now finished to Jackson, Minn., 25 miles west from the present terminus at Fairmount, and the work of laying the rails is in progress.

The company recently executed a mortgage for \$1,200,000 covering all of its road now built, or hereafter to be built, and also the land grant given for its construction.

Texas & Pacific.—The Parker County Construction Company, a local organization, has taken the contract to build the extension of this road from Fort Worth, Tex., westward to Weatherford, about 30 miles. The company agrees to begin work at once, and to take its pay in bonds.

Toledo, Peoria & Warsaw.—Receiver Hopkins' report to the Court for September and October is as follows:

Balance, Sept. 1	\$78,900.98
September receipts	153,406.55
October receipts	172,633.20
Total	\$405,030.73
September disbursements	\$141,348.61
October disbursements	138,724.73
	280,073.34

Balance, Nov. 1.....\$124,957.00
The receipts exceeded the disbursements by \$12,057.94 in September and by \$33,909.07 in October, making \$45,967.01 for the two months.

Troy & Boston.—This company has executed a new mortgage to secure an issue of bonds to the amount of \$1,000,000. A part of this amount is to be used to fund the floating debt, the other half to pay off \$650,000 old bonds, which will mature in 1882. The entire bonded debt of the company by its last report (for the year ending Sept. 30, 1877) was \$2,179,500; floating debt, \$351,977. The company owns 35 miles of road and leases 18 miles more, and the net earnings last year were \$275,614, or nearly \$98,500 more than enough to pay interest on the bonded debt, including the new bonds.

Union Pacific.—It is stated that the directors of this company have discussed and agreed upon a plan for settling the debt of the company to the government. The plan is said to be that the company should pay the whole amount now due, principal and interest, the money to be raised by the issue of 4 per cent. bonds, to be secured by a second lien, the same as that of the government subsidy bonds. Further details are not given.

ANNUAL REPORTS.

Evansville & Terre Haute.

This company, formerly the Evansville & Crawfordsville, owns a main line from Evansville, Ind., northward to Terre Haute, 109 miles, and the Rockville Division, from Terre Haute northeast to Rockville, 23 miles. The Rockville Division is leased to the Logansport, Crawfordsville & Southwestern Company. The twenty-fourth annual report covers the year ending Aug. 31, 1878.

The equipment consists of 22 engines; 11 passenger and 5 baggage, mail and express cars; 456 freight cars; 1 pay, 12 service and 52 hand-cars. Two freight engines, 1 passenger and 25 refrigerator cars were added during the year.

The general account is as follows:

Stock (\$8,488 per mile)	\$1,120,416.27
Bonds (\$7,705 per mile)	1,017,000.00
Accounts and balances due	41,005.85
Earnings used in construction and income account	1,167,302.66

Total (\$25,346 per mile)	\$3,345,724.78
Construction, etc. (\$23,965 per mile)	\$3,167,288.34
Stocks	18,000.00
Fuel and materials	28,065.65
Cash, claims and receivables	132,370.79
	\$3,345,724.78

Of the stock \$100,000 is preferred stock. Of the bonds \$125,000 are secured on the Rockville Division.

The work done for the year was as follows:

Train mileage:	1877-78.	1876-77.	Inc. or Dec.	P. c.
Passenger	155,047	146,222	I.	8.25
Freight	180,891	151,063	I.	29.82
Service	10,282	23,915	D.	4.33
Switching	71,917	49,840	I.	22.07
Total	427,137	371,040	I.	56.09
Freight-car mileage	3,652,138	2,616,833	I.	1,035,305
Passengers carried	143,603	122,485	I.	21.18
Passenger mileage	4,577,090	4,102,386	I.	474,704
Tons freight carried	332,700	235,308	I.	97,392
Av. pass. train load, No.	29.52	28.06	I.	1.46
Av. receipt:				
Per passenger per mile	3.58 cts.	3.60 cts.	D.	0.02 ct.
Per ton per mile	1.55 "	1.83 "	D.	0.28 "

Of the freight-car mileage 27.4 per cent. was of empty cars; 35,216 loaded and 16,378 empty cars were moved, the average trip of each car being 70.3 miles.

The earnings for the year were as follows:

	1877-78.	1876-77.	Inc. or Dec.	P. c.
Passengers	\$105,364.68	\$147,201.45	I.	\$18,163.23
Freight	378,162.10	308,577.00	I.	69,584.56
Express, mails, etc.	21,282.67	21,831.56	D.	548.89
Rents	18,210.00	18,316.86	D.	106.86
Total	\$583,019.51	\$495,927.47	I.	\$87,092.04
Expenses	404,270.98	350,215.87	I.	54,055.11

Net earnings	\$178,748.53	\$145,711.60	I.	\$33,036.93
Gross earn. per mile	5,348.89	4,548.79	I.	799.01
Net " "	1,632.87	1,330.80	I.	302.07
Per cent. of exps.	69.34	70.62	D.	1.28

The payments from net earnings were as follows:

Net earnings	\$178,748.53
Interest paid	\$81,401.52
Two dividends, 4½ per cent.	45,738.25
	127,159.77
Surplus	\$51,588.76

From this surplus 26 main line and 20 Rockville Division bonds were bought for the sinking fund at a cost of \$45,600.

During the year 206 tons iron, 1,587 tons steel rails and 58,295 new ties were laid; 500 tons steel have been bought and laid since the close of the year. This leaves 10 miles of the original iron laid in 1851, which must be replaced next season. There were laid 12,897 feet new sidings and the fencing of the road nearly completed. One new iron and one wooden bridge were built and several trestles renewed.

The company has bought a small steamer and some barges, which were placed on White River; the fleet has earned a fair profit besides bringing much business to the road.

The only fatal accidents were a switchman killed while coupling cars, and two drunken men run over by trains.

Great Western, of Canada.

The latest report of this company is for the half-year ending July 31, and covers the system of 510.63 miles, of which 229.38 miles are main line; 145.50 miles loop line; 120.92 miles of branches owned and 14.83 miles leased. There are also 302 miles of leased lines, only the net result from which is reported.

Receipts on capital account were the remaining installments on new shares and on 5 per cent. perpetual debenture stock; £73,100 old 7 per cent. short bonds have been exchanged for the debenture stock. Expenditures on capital account were £29,939, and £135,440 were charged for discount on new stock.

The revenue account for the half-year was as follows:

	1878.	1877.	Inc. or Dec.	P. c.
Gross receipts	\$377,485	\$370,514	I.	40.971
Working expenses	287,008	275,716	I.	11,382
Net earnings	\$90,387	\$94,798	D.	\$4,411
Loss on leased lines, interest, insurance funds, etc.	92,118	97,995	D.	5,877
Deficiency	\$1,731	\$3,197	D.	\$1,466
Per cent. of expenses	76.05	74.41	I.	1.64

There was a balance of £2,478 from the previous half-year, which covers the deficiency and leaves a surplus of £747. The earnings showed an increase in through freight and passenger business and in local stock, but a decrease in all other local business and in through stock. Though rates were very low, and the increase in through freight earnings was only 6 per cent., while the tonnage increased 39 per cent. The increase in working expenses was due to more extensive renewals. The transfers to the renewal funds, as was the case in the half-year ended July 31, 1877, have been suspended, the revenue of the half-year, after providing for interest on bonds and debenture stock, not admitting of the full credits to the funds on the usual basis; but the actual expenditure on renewals has been charged to revenue, amounting in the present half-year to £26,603 (as against £9,762 in the corresponding half of 1877), and in addition the usual credit to the fire insurance fund of £552 has been maintained and charged to revenue account. The dividend on the preference stock for the half-year, amounting to £12,644, will remain a charge against future revenue.

The renewal funds, therefore, remain as at the close of the preceding half-year, except the insurance fund; the total balance at credit of the various funds is £157,779.

The earnings and working expenses on a gold basis for the last eight half-years are shown in the following statement:

Half-years ended	Earnings per train mile.	Cash working expenses, excluding reserve and other funds.	Per train mile.	Per cent. of gross receipts.
Jan. 31, 1875	4 8½	4 11¼		74.38
July 31, 1875	4 11¼	4 6		60.32
Jan. 31, 1876	5 7	3 11½		70.99
July 31, 1876	4 10¼	3 6¼		73.63
Jan. 31, 1877	4 9	3 8½		78.11
July 31, 1877	4 9½	3 6½		74.41
Jan. 31, 1878	5 2½	3 3½		63.19
July 31, 1878	4 2	3 2		76.05

Concerning the leased lines the report says: "The loss on working leased lines of the company has been reduced from £9,204 in the half-year to the 31st July, 1877, to £5,041 in the present half-year, or an improvement of £4,163. The arrangement with the Galt & Guelph Railway Company, referred to in the last half-year's report, and authorized by the shareholders at the general meeting held on the 30th April, 1878, has not yet been completed, that company not having been able to comply with their part of the agreement. Under the traffic agreements with the Wellington, Grey & Bruce Railway Company the sum of £2,738, being equal to 20 per cent. of the half-year's earnings derived from additional traffic interchanged with that railway, will be applied on the 1st January, 1879, to the acquisition of the bonds of that company at par. The total bonds drawn amounted on 31st July, 1878, to £49,300. Though, as was intimated in the report of the last half-year, the Brantford, Norfolk & Port Burwell Railway has been worked as part of the Great Western system, it has only been in partial operation; the physical connection with the loop line not having yet been completed. The contract has been let for this extension, which will be ready for traffic in November next."

Of the Detroit & Milwaukee and Canada Southern lines the report says: "Effect is now being given to the agreements with the mortgage bondholders of the company, which were approved by a resolution of the special meeting of shareholders on the 30th of April last. The sale of the road under the foreclosure decree, took place on the 6th of September, and it was acquired by the purchasing committee appointed under the agreements. The reorganization of the company under the title of the Detroit, Grand Haven & Milwaukee Railway, is being proceeded with, and at an early date this valuable western connection will be worked as part of the Great Western system."

"Negotiations for a traffic arrangement with the Canada Southern Company, which were in abeyance pending its recent reorganization, were renewed during the summer and have resulted in an arrangement taking effect from the 1st of August, under which, by the award of Mr. Scott, President of the Pennsylvania Railroad Company, the through competitive east-bound and west-bound traffic passing through Detroit has been apportioned; the Great Western receiving 60 per cent. of the total through passenger, and 55 per cent. of the through freight traffic, with provisions for the excess over these percentages carried by either company, and for notices determining the agreement. Mr. Scott, in arriving at this decision states that he believes 'the results to be attained will be highly beneficial to each company, both in gross receipts and decreased expenditure.' A formal resolution will be submitted to the general meeting, sanctioning this arrangement."